MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

Fifty-Fourth Steering Committee Meeting

AGENDA

DATE: January 28, 2003
TIME: 9:00 A.M.
PLACE: Register of Deeds Conference Room
Milwaukee County Courthouse
901 N. Ninth Street, Room 103
Milwaukee, Wisconsin

I. Roll Call

II. Meeting Minutes

approve with changes p 2 # 3

Consideration of minutes of the 53rd Steering Committee meeting held on December 3, 2002 (copy of minutes enclosed).

III. Special Order of Business

Presentation of Citation to Mr. Ignatias J. Niemczyk sent to his home

IV. Old Business

A. Consideration of the fourth of four scheduled reports on the MCAMLIS pilot study investigating the use of "internet technology" (copy of report enclosed). will be revised and resubmitted at next meeting

hold over — B. Request for publication of a MCAMLIS newsletter. => prog mgt will need to do this if who takes responsibility

V. Reports

place on file A. Report by Commission staff on the status of the Milwaukee County Floodland Mapping Project (copy of memorandum enclosed).

POF B. Report by Commission staff on the status of conversion of MCAMLIS digital map file database to ESRI ArcInfo format (copies of status maps enclosed).

POF C. Report by City of Milwaukee staff on the status of Milwaukee cadastral map transformation projects (copy of report and status maps enclosed).

POF D. Report by Milwaukee County Register of Deeds staff on MCAMLIS street address file and cadastral map maintenance operations (copies of status maps enclosed).

POF E. Report by Milwaukee County Surveyor on Control Survey System maintenance (copy of status report enclosed).

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F. Report by project staff on changes made to the Wisconsin Land Information Program 2002 Grant Distributions (copy of memorandum enclosed).

POF G. License Agreements executed on behalf of the Utilities Subcommittee (copy of table of executed license agreements enclosed).

H. Status of MCAMLIS cash flow (copy of cash flow table enclosed).

VI. New Business - Look for a new site

VII. Election of Officers for 2003

VIII. Correspondence - Staff to prepare a memo on street addressing

IX. Date, time, and place of next meeting 4-8-03 5:00 pm

X. Adjournment

Kurt W. Bauer
Chairman

#79370 v1 - mcamlis agenda 54th mtg

MINUTES OF THE 53RD MEETING

Milwaukee County Automated Mapping and Land Information System
Steering Committee

DATE: December 3, 2002

TIME: 9:00 a.m.

PLACE: Milwaukee County Register of Deeds Office
Milwaukee County Courthouse
901 N. 9th Street, Room 103
Milwaukee, WI

Members Present	
Kurt W. Bauer, Chairman	Milwaukee County Surveyor
Gregory G. High (representing Thomas D. Kenney)	Director, Architectural and Engineering Services, Milwaukee County Department of Public Works
Thomas F. Lewandowski	Fiscal and Management Analyst, Milwaukee County Department of Administration
Bryan J. Maves (representing Nancy A. Olson)	Lead Analyst, Geographic Information Systems, City of Milwaukee
David S. Misun	Facilities Information Supervisor, Milwaukee Metropolitan Sewerage District
Ignatias J. Niemczyk	Register of Deeds, Milwaukee County
John C. Place	Manager, Maps and Records, WE Energies
William C. Shaw	Manager, Geographic Information Systems Mapping, WE Energies

Members Absent	
John M. Bennett	City Engineer, City of Franklin, representing the Intergovernmental Coordination Council of Milwaukee County
Dextra Hadnot	Director, External Affairs, SBC Ameritech-Wisconsin

Guests and Staff Present	
Candis Ahrendt	Interested Citizen
Kathleen A. Bach	GIS Technician, Register of Deeds Office, Milwaukee County
Wendy J. Bradshaw	SEWRPC Secretary
Gary E. Drent	Director, Support Services, Milwaukee County Department of Public Works
Thomas D. Patterson	MCAMLIS Project Manager
Thomas J. Tym	Technology Services Manager, Ruekert & Mielke, Inc.
Kevin R. White	GIS Supervisor, Department of Public Works, Milwaukee County

ROLL CALL

The fifty-third meeting of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee was called to order by Chairman Bauer at 9:00 a.m. Roll call was taken by circulating an attendance signature sheet; a quorum was declared present.

MINUTES

Approval of Minutes of the 52nd Steering Committee Meeting Held on October 8, 2002
Chairman Bauer noted that copies of the minutes of the 51st Steering Committee meeting held on October 8, 2002, had been distributed to all members of the Steering Committee for review prior to the meeting, and asked that the Committee consider those minutes.

Chairman Bauer noted that the project management staff had, subsequent to the Steering Committee meeting held on October 8, 2002, received a letter from Mr. Shaw indicating a need to include in the strategic plan for the operation of the MCAMLIS program in calendar years 2003 through 2005 two additional work elements; one relating to the maintenance of the cadastral maps prepared by the City of Milwaukee to MCAMLIS standards, and one relating to the integration of the City of Milwaukee street address coding data into the MCAMLIS database (copy of letter and staff reply attached to these minutes). The project management staff did, in response to Mr. Shaw's letter, include two additional work elements in the strategic plan addressing Mr. Shaw's concern. He noted that the revised strategic plan dated October 8, 2002, attached to the minutes being considered included those two additional work elements and that in approving the minutes, the Committee would also be approving the revised strategic plan.

There being no questions, comments, or corrections, on a motion by Mr. Shaw, seconded by Mr. Niemczyk, and carried unanimously, the minutes of the meeting of October 8, 2002, were approved as published.

NEW BUSINESS

Consideration of the Third of Four Scheduled Reports on the MCAMLIS Pilot Study Investigating the Use of Internet Technology

Chairman Bauer noted that Mr. Thomas J. Tym of the firm of Ruekert & Mielke, Inc., the consulting firm retained by the Regional Planning Commission on behalf of the Steering Committee to conduct the Land and Utility Information System Internet Prototype Study, was present to present the third work progress report of the study.

He noted that the Committee had considered and approved conditionally subject to directed revision, the first work progress report presented at the Steering Committee meeting held on January 24, 2002; and that the Committee had considered and approved conditionally subject to directed revision, the second work progress report presented at the Steering Committee meeting held on May 7, 2002. Chairman Bauer noted further that copies of the revised final drafts of the first two reports were mailed to all Committee members on November 6, 2002.

Chairman Bauer then asked Mr. Tym to lead a page-by-page review of the third report with the Committee. The following comments and suggested changes to the report were made by consensus in the course of the review.

Mr. Tym noted that the penultimate sentence of the second paragraph on page 1 should be corrected to read "12 of the 16 (75%) municipalities responded to the survey questionnaire."

Mr. Tym also indicated that the first sentence of the fourth paragraph on page 1 should be struck since final recommendations will be included in Report Number 4.

Mr. Place suggested, and the Committee concurred, that the phrase "and privately held" be inserted between the words "public" and "utilities" in the fifth paragraph on page 1. Mr. Shaw questioned the basis on which the statement in the sentence concerned was being made. Chairman Bauer concurred, indicating that he did not believe the study had demonstrated that the development of a County website application would necessarily significantly enhance the means by which local municipalities distribute and share information. He suggested, and the Committee concurred, that the sentence be dropped from the report.

Mr. Tym indicated that as of the date of the meeting no responses to the questionnaire survey had been received from the Villages of River Hills, Shorewood, West Milwaukee, and Whitefish Bay. If responses are received, he said, before final publication of the report, those responses would be included as appropriate in the tables presented on pages 1 through 16 of the text.

Mr. Shaw suggested, and the Committee concurred, that the tables should be carefully edited for consistency in format, correcting such inconsistencies as, for example, the order in which the "yes" and "no" columns appear in the tables.

Mr. Shaw suggested combining the tables presenting the responses relative to the cadastral and the topographic files. After brief discussion it was agreed to leave the tables separate, since the cadastral and topographic maps presented quite different user needs and maintenance requirements.

Mr. Shaw suggested, and the Committee concurred, that a paragraph succinctly summarizing the substantive and relevant findings of the questionnaire survey be added to the text on page 16.

Mr. Shaw noted that the word "coincident" should be changed to "consistent" in the first sentence of the second paragraph on page 17. Mr. Shaw also suggested that the last sentence of the third paragraph on page 17 be rewritten to eliminate the use of such biased terms as "anxiously awaiting the day", using more professional language. Chairman Bauer agreed, indicating that the sentence could be written to read instead, "most of the respondents relied on Milwaukee County for these services and indicated a desire for more current information on a regular basis."

Mr. Shaw suggested, and the Committee concurred, that the last sentence of the first paragraph on page 18 be revised to indicate that the problem is already a major impediment, rather than a future impediment. Chairman Bauer concurred. It was also agreed that the report should be carefully edited to replace words like "hurdle" with more professional terms.

Mr. Shaw suggested, and the Committee concurred, that the parenthetic acronym "ISP" should be provided after the introductory phrase of the first sentence of the second paragraph on page 18 in order to be consistent with the practice elsewhere in the text.

With respect to the prototype installation documented on page 19, Mr. Shaw asked whether a comparative analysis with configurations for other Internet applications utilizing similar software and serving similar clients had been made, and whether or not it had been demonstrated that the configuration used was adequate to meet probable future, as well as existing, needs. A brief discussion ensued, upon the conclusion of which it was agreed that a paragraph would be added to page 22 ahead of the recommendation set forth there addressing Mr. Shaw's expressed concerns and justifying why a comparative analysis of similar systems was not warranted, and, therefore, not made.

Mr. Niemczyk noted that reference was made on page 19 to the Microsoft PhotoDraw 2000 software program, a program which has been discontinued, and suggested a substitute be addressed in the text, or alternatively, in a footnote to the boxed lists set forth on page 19.

Mr. Shaw questioned the basis for the recommended size of the web server proposed on page 20 and the lack of a basis for assuring the adequacy of that size. A brief discussion ensued, upon the conclusion of which it was agreed that a paragraph would be added to the text addressing Mr. Shaw's concerns, including the potential for expansion of the configuration set forth.

Mr. Shaw noted that all of the components listed on page 20 were vendor supplied components, except for the security database component, which was a custom product. He suggested, and the Committee concurred, that this fact be footnoted in the boxed list.

Mr. Maves noted that the data on page 20 indicated that a single processor license was assumed for the ESRI ArcIMS 4.0 software and that a footnote to the item indicated that a dual processor license may be required at an additional cost of $5,000. Mr. Maves suggested, and the Committee concurred, that the associated cost be increased accordingly to $12,500.

Mr. Shaw observed, and Mr. Niemczyk agreed, that a valid comparison of the total costs of Options 1 and 2 related to web hosting should be provided together with a paragraph in the text concerning the comparison. Mr. Lewandowski indicated that in any such comparison, it should be made clear whether the costs concerned are monthly or annual. Moreover, Mr. Shaw noted that such a comparison should clearly identify any additional services that might be required under either or both options; and that the cost comparison should clearly identify the cycle of data updates assumed in making the cost comparison.

A discussion ensued concerning the cycle of data updates, upon the conclusion of which it was suggested by Mr. Niemczyk, and the Committee concurred, that a paragraph should be added to the text describing a practical cycle that would provide updated data by a date certain--for example, a 60 day cycle completed on the 15th of every other month--with indication that any data not provided by that date would not be incorporated in an updated database until the next cycle with, therefore, a lag of about 60 days. This cycle should be stated and assumed as a basis for the cost analyses and comparisons.

Mr. Patterson noted that the word "restraint" in the first line of the recommendation set forth on page 22 should be changed to "constraint."

Mr. Misun questioned a reference to the use of Microsoft Windows XP Pro, the recommended configuration and a brief discussion ensued. Upon the conclusion of the discussion, it was agreed that the reference would be changed to a generic software requirement.

Mr. Shaw questioned the adequacy of the cost set forth in the recommendation relative to the transfer of the web host function from an outside service agency to an in-house County staff. A brief discussion ensued, upon the conclusion of which it was agreed that the cost set forth should remain unchanged.

Mr. Shaw questioned the adequacy of the security recommendations and specifically the extent of the experience of the consultant with application of the system elsewhere. A brief discussion ensued in which the Chairman observed that if the scope of the MCAMLIS data to be provided through the Internet is limited to the control survey, cadastral map, and topographic map data, then the security needs would be significantly different than if the database included utility data. He suggested, and the Committee concurred, that this issue would be further addressed in the fourth report and that the level of security required and associated costs would be revisited in that report.

Mr. Niemczyk suggested, and the Committee concurred, that each set of prototype web pages reproduced in the report beginning on page 26 should be identified by the option with which they were associated.

Mr. Patterson questioned the validity of the third sentence of the second paragraph on page 48, noting that ties between land information and facility feature data would still be of interest to audiences other than public and private utility organizations--such as assessors. It was agreed that this sentence should be revised accordingly.

Mr. High asked, and the Committee concurred, that the entire text of the report be revised in order to assure that the terms "MCAMLIS" as opposed to "Milwaukee County" are properly used within each context concerned.

Upon the completion of Mr. Tym's review and ascertainment that there were no further questions or comments on the draft report, Chairman Bauer indicated that he would consider a motion to approve Report Number 3 of the Land and Utility Information System Internet Prototype Study on the condition that the consultant submit a revised draft of the report incorporating all of the changes required by the comments made during the review of the report by the Committee, and that the revised report be presented as an attachment to the minutes of this meeting in an edited format clearly showing deletions and additions made in the original text in response to Committee direction (copy attached to these minutes). In this way, he said, the Committee would have an opportunity to request any required further changes to the report at the time that the Committee considers the minutes of this meeting.

On a motion by Mr. Lewandowski, seconded by Mr. Niemczyk, and carried unanimously, Report Number 3 of the Land and Utility Information System Internet Prototype Study was conditionally approved subject to further review and approval of a revised draft of the report prepared in accordance with the Chairman's recommendation.

Chairman Bauer then asked the consultant to revise the report as quickly as possible so that the revised report could be attached to the minutes of this meeting in a timely manner. He then excused Mr. Tym.

Consideration of the Fourth of Four Scheduled Reports on the MCAMLIS Pilot Study Investigating the Use of Internet Technology

Chairman Bauer noted that the next agenda item concerned the fourth and final report to be issued under the Land and Utility Information System Internet Prototype Study. He noted that this report was intended to clearly and succinctly summarize the findings and recommendations of the study. As such, he said, it constituted the most important of the four reports, being the report that was most likely to be reviewed by interested parties, referenced in future work of the Steering Committee, and from time to time acted upon.

Chairman Bauer indicated that the project management staff had reviewed a draft of the report and found the report, as drafted, to be unacceptable, both with respect to the clarity and accuracy of the text and with respect to the substantive recommendations as based upon the findings of the study as presented in the final drafts of the first three study reports. Chairman Bauer indicated that, therefore, the staff had withdrawn the report from consideration at this meeting, the intent being to provide the Committee with a revised draft for review at the next meeting of the Steering Committee.

Consideration of the Desirability of Publishing a MCAMLIS Newsletter or Some Other Form of Project Outreach Activity

Chairman Bauer noted that Mr. Bennett had contacted the project staff to request that the Committee consider the publication of a MCAMLIS newsletter as a means of increasing outreach activities carried on under the project. He noted that Mr. Bennett could not be present at the meeting and, therefore, suggested, and the Committee concurred, that the request be held over for consideration until the next meeting.

REPORTS

Report by Commission Staff on the Status of Conversion of MCAMLIS Digital Map File Database to ESRI ArcInfo Format

Mr. Patterson reported that the Steering Committee had, at its meeting held on July 10, 2001, approved a project for the translation of the MCAMLIS digital map files from the Genamap and Intergraph DGN formats to the ESRI format. The work will result in the translation of all MCAMLIS digital topographic maps and the majority of the MCAMLIS digital cadastral maps into ESRI ArcInfo format. With respect to the cadastral mapping work, the work will include, as necessary, the City of Milwaukee cadastral maps already prepared to MCAMLIS standards in the Phase 1 through Phase 5 project areas and in the three project areas for which the City staff recompiled maps.

Mr. Patterson noted that all members of the Steering Committee had received a copy of a map showing the status of the conversion of the MCAMLIS digital topographic map files to the ESRI ArcInfo format (copy of map attached to these minutes). Mr. Patterson further noted that as of October 31, 2002, the MCAMLIS topographic maps had been converted to the ESRI ArcInfo format within the area shown in light green on the map and were in the process of conversion within the area shown in dark green on the map. Mr. Patterson indicated the work was proceeding in good order and was expected to be completed by December 31, 2002, the project completion date.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting.

Report by City of Milwaukee Staff on the Status of Milwaukee Cadastral Map Transformation Projects

Chairman Bauer noted that all members of the Steering Committee had received a copy of the status report on the City of Milwaukee cadastral map transformation projects for review prior to the meeting. Chairman Bauer then asked Mr. Patterson, in the absence of Ms. Olson, to review the report with the Committee.

Mr. Patterson then briefed the Committee on the status of the work utilizing the status report provided.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of report attached to the minutes).

Report by Milwaukee County Register of Deeds staff on MCAMLIS Street Address File and Cadastral Map Maintenance Operations

Chairman Bauer noted that all Committee members had received copies of maps showing the status of the Milwaukee County cadastral map and street address file maintenance as of November 6, 2002. He then asked Ms. Kathleen A. Bach, GIS Technician, Register of Deeds Office, Milwaukee County, to report on the status of the Milwaukee cadastral map and street address file maintenance operations.

Ms. Bach reported that good progress had been made in the maintenance of the MCAMLIS cadastral maps for the 18 suburban units of government within Milwaukee County, as shown on the status map provided to all Committee members prior to the meeting. She reported further that while good progress had been made with respect to the maintenance of the MCAMLIS street address coding file, also as shown on the work progress map provided to all Committee members prior to the meeting, she was still awaiting responses from the Villages of Fox Point, Shorewood, and Whitefish Bay providing data needed to maintain the file relating to those communities.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of maps attached to these minutes).

Report by Project Staff on Continuing Discussions Between the City of Milwaukee, Milwaukee County, and MCAMLIS Concerning Cadastral Map Maintenance Issues

Mr. Patterson reported that an interagency staff meeting had been convened on November 15, 2002, at the Commission offices, for the purpose of discussing cadastral map maintenance issues relating to the MCAMLIS format cadastral maps available for portions of the City of Milwaukee. This interagency staff meeting was the second such staff meeting convened, in accordance with the directive of the Steering Committee given at its meeting of May 7, 2002, to investigate cadastral map maintenance issues relating to the MCAMLIS format cadastral maps available for portions of the City of Milwaukee and the City of West Allis.

The first such meeting, held on June 12, 2002, had determined that the MCAMLIS format cadastral maps for the City of West Allis could be most efficiently and effectively maintained by the Milwaukee County Register of Deeds Office.

Mr. Patterson stated that with respect to the issue of maintaining the transformed MCAMLIS format cadastral maps within the City of Milwaukee, it had not been possible at the first meeting to determine the manner in which the documents and information necessary to keep the maps current actually move either between the County Register of Deeds Office and the City of Milwaukee, or between various City departments.

Mr. Patterson reported that subsequent to that meeting additional research had been carried out by the City of Milwaukee staff concerning the manner in which information is processed by the City to maintain its various map series and that Ms. Olson, of the City staff, had prepared a flowchart setting forth this process. Mr. Patterson reported that this flowchart had been the focus of the discussion of the meeting held on November 15, 2002. Mr. Patterson then distributed a copy of the subject flowchart and briefly reviewed its salient points with the Steering Committee (copy of flowchart attached to these minutes).

Mr. Patterson reported that the November 15, 2002, meeting had been attended by: Mr. Ignatias J. Niemczyk, Milwaukee County Register of Deeds; and Ms. Kathleen A. Bach, GIS Technician, Milwaukee County Register of Deeds Office; Messrs. Gregory High, Director, Architectural and Engineering Services; Gary E. Drent, Director, Support Services; Kevin R. White, GIS Supervisor, Milwaukee County Department of Public Works; Ms. Marcia Lindholm, Manager, Drafting and Records; Mr. Daniel Maruszewski, Drafting Technician, Infrastructure Services Division; and Ms. Nancy A. Olson, GIS Manager, Information and Technology Management Division, City of Milwaukee.

Mr. Patterson stated that with respect to the City of Milwaukee, it had been determined by those present that the MCAMLIS format cadastral maps could most likely be efficiently and effectively maintained by the Milwaukee County Register of Deeds Office. This determination was made on the basis of the understanding reached concerning the flow of documents and information needed to maintain the maps and the manner and timing with which this information moved between the Register of Deeds Office and the City of Milwaukee under current practice. The number of changes required to be made to the maps in the City of Milwaukee on an annual basis was believed by those in attendance to be a manageable matter for the Register of Deeds Office to handle.

As a result of the discussion at the meeting, Ms. Olson offered to facilitate a meeting between Mr. Niemczyk and Ms. Mary Reavy, City of Milwaukee Assessor, to further discuss the desirability of addressing several areas of potential work duplication. refers to Chicago Title relationship

Mr. Patterson then summarized that the consensus of those in attendance at the November 15, 2002, meeting was that the MCAMLIS format cadastral maps covering portions of the City of Milwaukee be maintained by the Milwaukee County Register of Deeds Office; that the work load presented by this assignment of the maintenance function be reviewed on a regular basis to determine its impact on the staff currently assigned to carry out this work within the Register of Deeds Office; and that adjustments to the Agreement between the Milwaukee County Register of Deeds Office, and the MCAMLIS Steering Committee be made if warranted by the workload concerned.

Given the importance of the issue, Chairman Bauer asked that the recommendation which emerged from the interagency staff meeting concerned be acted upon by the Steering Committee through a formal motion rather than by simple consensus. Accordingly, it was moved by Mr. Misun, seconded by Mr. High, and carried unanimously, to assign the responsibility for the maintenance of the City of Milwaukee cadastral maps that have been recompiled and transformed to meet MCAMLIS standards to the Milwaukee County Register of Deeds Office, the responsibility becoming effective on January 1, 2003.

Chairman Bauer indicated that he assumed that the County Register of Deeds Office would provide the Steering Committee with regular status reports concerning the work as that Office does with the maintenance of the other MCAMLIS cadastral map and street address coding files. Chairman Bauer noted further that while it was assumed at this time that the necessary work could be accomplished within the resources presently available within the Register of Deeds Office, if experience proves this to be untenable, the MCAMLIS project will have to consider providing additional funding in support of the maintenance work to the Register of Deeds Office.

Report by Project Staff on Status of License Agreements

Chairman Bauer noted that all members of the Steering Committee had received a copy of a table setting forth all of the license agreements executed by users of the MCAMLIS database from January 1, 2002, for review prior to the meeting.

Chairman Bauer noted that five new license agreements had been executed since the last status report was given to the Committee at their meeting of October 8, 2002. With one exception, the University of Wisconsin-Madison, Department of Landscape Architecture, the users concerned were all engineering or architectural firms.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of table setting forth executed license agreements attached to these minutes).

Report by Milwaukee County Staff on Status of MCAMLIS Cash Flow
Chairman Bauer noted that all Committee members had received a copy of a table summarizing the status of the MCAMLIS project cash flow as of September 30, 2002, for review prior to the meeting. He noted that the County staff had provided an updated table setting forth the cash flow status as of October 31, 2002; a copy of the updated table was then distributed. Chairman Bauer then asked Mr. Lewandowski to review the table with the Committee.

Mr. Lewandowski noted that the table was familiar to all Committee members and, essentially, self-explanatory.

There being no questions or comments on the report, it was the consensus of the Committee that the report be placed on file via the minutes of the meeting (copy of the table setting forth the cash flow status as of October 31, 2002, attached to these minutes).

OLD BUSINESS

Discussion of the Transition of Certain MCAMLIS Project Management Responsibilities from SEWRPC to the Milwaukee County Department of Public Works
Chairman Bauer noted that all Committee members had, at the meeting of October 8, 2002, received a copy of a letter dated September 26, 2002, from Mr. Thomas D. Kenney, Acting Director of the Milwaukee County Department of Public Works, asking that the Steering Committee consider the transition of certain MCAMLIS project management responsibilities from SEWRPC to the Milwaukee County Department of Public Works. The Committee had at that meeting acted to table the letter request pending further consideration by the County interests concerned. He then asked Mr. High whether such consideration had taken place.

Mr. High indicated that there had been further consultations between the three county Departments concerned—Administration, Register of Deeds, and Department of Public Works—and that the matter had been brought to the attention of the County Executive. Based upon the results of the consultations, and upon the expressed interest of the County Executive, the County desired the Steering Committee to proceed with detailed consideration of the request.

A discussion ensued upon the conclusion of which it was moved by Mr. High, seconded by Mr. Niemczyk, and carried unanimously, that an ad hoc subcommittee be created to investigate the desirability, feasibility, scope, means, timing, and fiscal impacts of a transfer of the MCAMLIS project management responsibilities from the Regional Planning Commission to the Milwaukee County Department of Public Works.

[Secretary's Note: Acting in response to the approved motion, Chairman Bauer acted to appoint a subcommittee of the Steering Committee consisting of the Register of Deeds, representatives of the County Departments of Administration and Public Works, and the Executive Director of the Regional Planning Commission, who would convene the subcommittee. The project management staff would work with that subcommittee to prepare a memorandum setting forth the findings and recommendations of the subcommittee with respect to its charge; namely, to investigate the desirability, feasibility, scope, means, timing, and fiscal impacts of the transfer of MCAMLIS project management responsibilities from the Regional Planning Commission staff to the County Department of Public Works for consideration and action by the Steering Committee (copy of letters creating the subcommittee attached to these minutes).]

Consideration of a Contract Between MCAMLIS and SEWRPC for the Provision of MCAMLIS Project Management Services for 2003 and 2004

Chairman Bauer indicated that all Committee members had received for consideration at the meeting held on October 8, 2002, a copy of a contract proposed to be entered into between MCAMLIS and SEWRPC for the provision of project management services in calendar years 2003 and 2004. Chairman Bauer indicated that the proposed contract would provide essentially the same services that have been provided by SEWRPC staff to the MCAMLIS Steering Committee since 1992, and that the proposed contract amount of $100,000 per year represented a decrease of $25,000 per year in the cost of the services concerned over the previous contract. This decrease, Chairman Bauer said, may be attributed to two changes: 1) the transfer of the cadastral map maintenance function to the Milwaukee County Register of Deeds Office; and 2) declining grant applications and attendant report preparation requirements under the Wisconsin Land Information Program due to decreased revenues received from that program.

Chairman Bauer noted that the request to transfer project management responsibilities from SEWRPC staff to the Milwaukee County Department of Public Works had important implications for the proposed contract.

Mr. High observed that a contract between MCAMLIS and SEWRPC would be required in any case since the transfer of the management services would require a transition period and the cooperation and assistance of the SEWRPC staff. A lengthy discussion ensued in which it was observed that at least two courses of action were available to the Steering Committee with respect to the Agreement: 1) the proposed two year period could be reduced to one year; or 2) a termination clause could be added to the terms of the proposed agreement. Upon conclusion of the discussion it was moved by Mr. Lewandowski, seconded by Mr. Niemczyk, and carried unanimously, that the proposed contract between MCAMLIS and SEWRPC for the provision of project management services in calendar years 2003 and 2004 be approved conditioned upon the addition of a termination clause in the terms of the contract.

Chairman Bauer indicated that a copy of the revised Agreement, as conditionally approved, would be provided as an attachment to the minutes of the meeting.

CORRESPONDENCE

Chairman Bauer then distributed copies of a letter addressed to him from Committee member Nancy A. Olson indicating that she would not be able to attend the meeting on December 3, 2002, and would like an opportunity to comment and vote on the Report No. 3 and Report No. 4, MCAMLIS Pilot Study

Investigating the Use of Internet Technology (copy of letter attached to these minutes). Chairman Bauer indicated that he believed that the Committee actions today were responsive to Ms. Olson's request in that Report No. 4 was withdrawn from consideration; and in that the Committee's action to approve conditionally Report No. 3 would provide Ms. Olson with an opportunity to comment and vote on the report when the minutes of the December 3, 2002, meeting are considered by the Steering Committee.

MR. NIEMCZYK'S RETIREMENT FROM THE STEERING COMMITTEE

Chairman Bauer noted that Mr. Niemczyk would complete his term of office as County Register of Deeds on December 20, 2002, and would be, accordingly replaced on the Committee by the newly elected County Register of Deeds, or his appointee. Chairman Bauer indicated further that he regretted Mr. Niemczyk's leaving the Committee since, during his relatively short period of service, he had been an active member of the Committee, had made valuable contributions to the Committee's work, and to the MCAMLIS project. He suggested that it would be very much in order for the Committee to appropriately recognize Mr. Niemczyk's contributions.

On a motion by Mr. High, seconded by Mr. Misun, and carried unanimously, the Committee directed the project staff to draw up a resolution of appreciation and to prepare a plaque of appreciation for presentation to Mr. Niemczyk.

[Secretary's Note: As directed, the staff has prepared the following resolution, which in accordance with the spirit of the Steering Committee's action, may be considered to have been approved unanimously:

"Whereas Ignatias J. Niemczyk has served as the Milwaukee County Land Information Officer since his appointment as Milwaukee County Register of Deeds by Governor Scott McCallum on May 3, 2002; and

Whereas, he has served as a member of the Milwaukee County Automated Mapping and Land Information System Steering Committee from May 3, 2002, through December 20, 2002; and

Whereas, he was an exemplary and active member of the Steering Committee; and

Whereas, he unstintingly placed his knowledge and expertise in computer technology and his management skills at the disposal of the Committee;

Now, therefore, this citation is presented to Ignatias J. Niemczyk in sincere appreciation of his distinguished service in the public interest.

In testimony whereof, Mr. Kurt W. Bauer, the Milwaukee County Surveyor, as Chairman of the Steering Committee; and Mr. Thomas D. Patterson, the Project Manager and Secretary of the Steering Committee, have here below affixed their signatures.

Kurt W. Bauer
Milwaukee County Surveyor

Thomas D. Patterson
MCAMLIS Project Manager and Secretary"]

DATE, TIME, AND PLACE OF NEXT MEETING

Chairman Bauer then asked the Committee to consider the date, time, and place for the next Committee meeting. After some brief discussion, it was determined that the next meeting of the Steering Committee should be scheduled to be held on January 28, 2003, at 9:00 A.M. in the Milwaukee County Register of Deeds office.

Chairman Bauer indicated that one of the agenda items for that meeting would be the election of officers for calendar year 2003; namely, election of a Committee Chairman and Vice Chairman, assuming that the secretarial services would, at least for a time, continue to be provided by the project management staff.

ADJOURNMENT

There being no further business to come before the Steering Committee, on a motion by Mr. Niemczyk, seconded by Mr. High, and carried unanimously, the meeting adjourned at 11:45 A.M.

Respectfully submitted,

Thomas D. Patterson
MCAMLIS Project Manager

#78461 v1 - MCAMLIS MIN-53RD MTG 12/3/02
KWB/TDP/wb

we energies

231 W. Michigan St.
Milwaukee, WI 53290-0001
www.we-energies.com

October 9, 2002

Mr. Kurt Bauer, Chairman
MCAMLIS Steering Committee
Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive
Waukesha, WI 53187-1607

Dear Mr. Bauer,

Let me begin by expressing my appreciation to you and Mr. Patterson for the updates provided at the MCAMLIS Steering Committee meeting on Tuesday. Having timely status reports for project work will benefit all members of the Steering Committee as consideration is given to the MCAMLIS Program Strategic Assessment for 2003-2007.

I agree with comments made at the meeting that the MCAMLIS Work Program for 2003-2005, is to be considered by the members of the committee as advisory and that there will be opportunity for the Steering Committee to add to the list and re-prioritize if necessary, some of the work tasks included in Table 5. For example, and while the issue was already discussed at the meeting, the importance requires me to restate the need for a maintenance process to be established for the transformed cadastral maps delivered from the City of Milwaukee. This work effort should, in my opinion, be a top priority.

I would also note that the integration of addresses from the City of Milwaukee with the MCAMLIS database was not included in the work tasks listed in Table 5. It should be understood that completing this task (not the field verification) would result in a complete addressing system in the MCAMLIS standard format for all of Milwaukee County. This work initiative should be included in the program as well.

Again, thank you for all of the work put into the meeting. Please contact me at your convenience if you should have any questions.

Sincerely,

W. Shaw

William Shaw
We Energies

Copy: Thomas Patterson, MCAMLIS Project Manager

COPY

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
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October 16, 2002

Mr. William C. Shaw, Manager
Geographic Information Systems Mapping
WE Energies
231 W. Michigan Street
Milwaukee, WI 53290-001

Dear Mr. Shaw

This is to acknowledge receipt of, and to thank you for, your letter of October 9, 2002, reiterating your comments made at the MCAMLIS Steering Committee meeting held on October 8, 2002. We consider your comments to be, indeed, valid.

We have, therefore, asked the MCAMLIS project management staff to revise the strategic plan presented in the Memorandum concerned to include in the proposed MCAMLIS work program for the years 2003 through 2005 both the maintenance of the City of Milwaukee cadastral maps and the integration of the City of Milwaukee street address data into the MCAMLIS database.

When you receive them, you will find the minutes of the October 8th Steering Committee meeting to include a revised strategic plan, which includes the items concerned.

We very much appreciate your continued interest in the work of the MCAMLIS Steering Committee. Should you have any questions concerning this matter, please do not hesitate to call me or Mr. Patterson.

Sincerely,

Kurt W. Bauer, Chairman
MCAMLIS Steering Committee

KWB/wb
#77332 v1 - SHAW LETTER

cc: Mr. Thomas D. Patterson
MCAMLIS Project Manager

Draft

MCAMLIS
LAND AND UTILITY INFORMATION SYSTEM INTERNET PROTOTYPE

Report No. 3

~~October~~ January 2003~~2~~

RUEKERT/MIELKE
W233 N2080 Ridgeview Parkway
Waukesha, Wisconsin 53188-1020

TABLE OF CONTENTS

PREAMBLE

This is the third of four reports concerning the status of implementing a web based land and utility information system for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS). The work effort to date represents approximately 86% of the total project outlined in the Prospectus approved by the MCAMLIS Steering Committee.

Based on feedback from other local municipal staff regarding the lack of information pertaining to this report, it was decided that a presentation should be given to the Intergovernmental Cooperation Council (ICC). A presentation was conducted by Mr. Thomas J Tym, Ruekert/Mielke on Monday, July 22, 2002. In addition, survey questionnaires were mailed to representatives of the ICC. ~~Fourteen~~ Twelve of the remaining sixteen (~~88~~75%) municipalities responded to the survey questionnaire. The results of the survey are included in Appendix 1. In total, 15 of the 19 (79%) communities in Milwaukee County participated in the survey.

As proposed and outlined in the Prospectus, this report covers the development and installation of the internet prototype web application, conversion of available data provided by the Technical Advisory Committee (TAC) participants, determination of data storage and server requirements, including the evaluation of purchasing new, or using existing, hardware and software to support the web application, establishing data standards, and documentation.

Following the initial review of Report No. 2 by the MCAMLIS Steering Committee on May 7, 2002, and subsequent approval at the June 25, 2002 meeting, Ruekert/Mielke embarked on the development of the prototype web application. On August 19, 2002, the Technical Advisory Committee met to evaluate the prototype web application. Representatives from all participants were in attendance. Recommendations provided herein are based on feedback from the Technical Advisory Committee members in attendance at this meeting.

~~Since Report No. 3 includes final recommendations for the development of the production environment and strategic implementation process. Based on the results of this study, and the recommendations made by the Technical Advisory Committee, the development of a County-web application could significantly enhance the methods in which local municipalities and public utilities distribute and share common information.~~

BACKGROUND

The Internet Prototype required an inventory of pertinent information for each of the participants in the pilot project area. The information was considered important to provide an understanding of the basic uses of the MCAMLIS products that will be used to determine the requirements of a successful web based system. The Internet Prototype developed as part of this project included all of the information provided by the participants. Since the digital data was provided in numerous file formats, data conversion was required.

INVENTORY EXISTING SYSTEMS – OTHER LOCAL UNITS OF GOVERNMENT

Survey Contacts

In order to complete the inventory of existing systems and data usage, the questionnaire originally prepared for, and completed by the Technical Advisory Committee members was distributed to the other local municipalities. The following is a list of the contact information:

	Municipality	Contact
√	Village of Bayside	Mr. Frank Sherman, Village Manager
√	City of Cudahy	Mr. Steve Miner, City Assessor
√	Village of Fox Point	Mr. Michael Lynett, Director of Public Works
√	City of Franklin	Mr. John Bennett, City Engineer/Director of Public Works
√	City of Glendale	Mr. Todd Stuebe, Director of Community Development
√	Village of Greendale	Mr. Joseph Murray, Village Manager
√	City of Greenfield	Mr. Steve Helminiak, City Engineer
√	Village of Hales Corners	Mr. Michael Martin, Directory of Public Works
√	City of Oak Creek	Mr. Paul Milewski, Director of Community Development
	Village of River Hills	Mr. Thomas Tollaksen, Village Manager
√	City of St. Francis	Mr. Jack Schultz, City Engineer
	Village of Shorewood	Mr. James Lynch, Community Development Director
√	City of South Milwaukee	Mr. Jac Zader, Director of Planning and Inspections
√	City of Wauwatosa	Mr. William Kappel, Director of Public Works
	Village of West Milwaukee	Ms. Donna Mazar-Buse, Inspection Services
	Village of Whitefish Bay	Ms. Mary Jo Lange, Director or Public Works/Engineer

Responses included on the following pages:

SECTION A: MCAMLIS – Topographic Files

1. Do you update the digital topographic files:	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of Wauwatosa~~— Engineering~~		X				
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek		X				
City of Glendale		X				
Village of Bayside		X				
City of St. Francis	X		Engineering	1	Peter Bayerl	Yearly or as needed.
City of Franklin	X		Engineering	2	Ronnie and Marcia	Currently updating backlog, hope to update select features as needed in the future.
City of South Milwaukee	X		Planning	1	1	As needed.
City of Greenfield	X		Engineering	2	Craig Skala & Jeff Tamblyn	Varies. If there has been a need to update an area for meetings or discussions, then we will make changes as needed for a particular event. In most other cases we have not made updates to the files. We were told that MCAMLIS had no plans to make updates in the near future. Seeing as our current files dated 1993 are getting out of date, we have started the process of updating features such as structures, pavements, etc. based on data from building permits and various plans. We have not extensively used aerial photos at this time.
Village of Greendale		X				
City of Cudahy		X				

SECTION A: MCAMLIS – Cadastral Files

1. Do you update the digital cadastral files:	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of Wauwatosa-~~Engineering~~	X		Yes, but only if it would affect right-of-way for our City map and would do more if existing files were current			
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek	X		Yes, but not for MCAMLIS - Engineering	1	Leslie Flynn	As soon as info comes in
City of Glendale		X				
Village of Bayside		X				
City of St. Francis	X		Engineering, Building & Zoning	1	Peter Bayerl	Yearly, or as-needed
City of Franklin	X		Engineering updates, graphics, Engineering & Assessor updates attribute data	1, graphic updates 2 attribute updates	Ron Ascuncion,	Ongoing
City of South Milwaukee	X		Planning	1	1	As needed
City of Greenfield	X		Engineering	2	Craig Skala & Jeff Tamblyn	As they occur
Village of Greendale		X				
City of Cudahy		X				

2. Would you like to see MCAMLIS Update the CAD files more often?	Y	N	If yes, how often? Daily	Weekly	Bi-monthly	Monthly	Qtrl'y	Yearly	If yes, please explain which cadastral features need to be provided	Delivered in what software?
City of Wauwatosa-~~Engineering~~		X					X			AutoCAD Dwg or .dxf and all ArcView
Village of Hales Corners		X								N/A
Village of Fox Point	X									
City of Oak Creek										
City of Glendale	X							X	Any changes to parcels	ESRI
Village of Bayside	X						X			
City of St. Francis	X							X	AutoCAD	
City of Franklin	X					X			Updates are currently being performed by the City if data graphics edits could be performed on a timely basis receiving updates would be of interest to the City.	
City of South Milwaukee	X					X			No response	XRC Info
City of Greenfield		X								There should be one standard format. Procedures can be made to convert data as needed. We prefer *.dgn at this time.
Village of Greendale	? X						X		All features, especially property lines.	ESRI format; coverages or shapefiles or geodatabases
City of Cudahy	X								We do not know the current schedule for updates	AutoCAD

3. Do you use custom tools?	Y	N	If yes, who developed tools?	In what language was tool developed?
City of Wauwatosa-~~Engineering~~	X			
Village of Hales Corners	X			
Village of Fox Point		X		
City of Oak Creek		X		
City of Glendale		X		
Village of Bayside		X		
City of St. Francis		X		
City of Franklin	X		PlanGraphics	ArcGIS
City of South Milwaukee		X		
City of Greenfield			No response	
Village of Greendale		X		
City of Cudahy		X		

4. Explain process of obtaining source materials:	
City of Wauwatosa ~~Engineering~~	No response
Village of Hales Corners	Village does not update cadastral maps- no process in place
Village of Fox Point	No response.
City of Oak Creek	When Certified Survey Map's & subdivisions are recorded, we "COGO" them onto our maps immediately.
City of Glendale	Obtaining source materials through MCAMLIS has been inconsistent in terms of what is available and when materials will be available
Village of Bayside	No response
City of St. Francis	Consulting engineering services.
City of Franklin	Hard copy plats, Certified Survey Map's, condo projects, deeds are used as either approved by the City of as copies are received from the County.
City of South Milwaukee	No response
City of Greenfield	Most of the data is obtained internally as land transfers take place through CSM's, Subdivisions, ROW transfers, etc. We also get data from the Milwaukee County Register of Deeds office when land is transferred, however, that data generally takes several months to arrive. Often time we show current land divisions with incomplete tax key number information until we receive that data from the County
Village of Greendale	N/A
City of Cudahy	No response

5. Is it important to track the history of updates?	Y	N
City of Wauwatosa	X	
Village of Hales Corners	X	
Village of Fox Point		X
City of Oak Creek	X	
City of Glendale	X	
Village of Bayside	X	
City of St. Francis	X	
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield	X	
Village of Greendale	X	
City of Cudahy		X

6. Do you think updates could be handled by an outside agency?	Y	N	If no, explain reasons
City of Wauwatosa ~~Engineering~~	X		If done w/appropriate direction
Village of Hales Corners	X		
Village of Fox Point			NO ANSWER SUBMITTED
City of Oak Creek			Maybe. I would worry about our level of accuracy being maintained.
City of Glendale	X		
Village of Bayside	X		
City of St. Francis		X	Accuracy of work would be lost.
City of Franklin		X	We are using SDE layers that include a significant amount of attribute data that must be integrated with other systems. As a result, we need to use the custom tools developed to ensure data integrity.
City of South Milwaukee		X	Data Integrity
City of Greenfield	X		Yes, provided that it could be done in a timely manner at a reasonable price.
Village of Greendale	X		
City of Cudahy	X		

7. If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	Y	N
Village Hales Corners		X
Village of Fox Point		
City of Oak Creek	X	
City of Glendale	X	
Village of Bayside		X
City of St. Francis		X
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield	X	
Village of Greendale	X	
City of Cudahy	X	

SECTION A: MCAMLIS – Topographic Files

1. Do you update the digital topographic files:	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of Wauwatosa~~—Engineering~~		X				
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek		X				
City of Glendale		X				
Village of Bayside		X				
City of St. Francis	X		Engineering	1	Peter Bayerl	Yearly or as needed.
City of Franklin	X		Engineering	2	Ronnie and Marcia	Currently updating backlog, hope to update select features as needed in the future.
City of South Milwaukee	X		Planning	1	1	As needed.
City of Greenfield	X		Engineering	2	Craig Skala & Jeff Tamblyn	Varies. If there has been a need to update an area for meetings or discussions, then we will make changes as needed for a particular event. In most other cases we have not made updates to the files. We were told that MCAMLIS had no plans to make updates in the near future. Seeing as our current files dated 1993 are getting out of date, we have started the process of updating features such as structures, pavements, etc. based on data from building permits and various plans. We have not extensively used aerial photos at this time.
Village of Greendale		X				
City of Cudahy		X				

9. Have you compiled a seamless map of the digital cadastral maps?	Y	N	If Yes, what would be the desired extent of your seamless map?	If no, would you like to have this done by MCAMLIS?
City of Wauwatosa—~~Engineering~~	X		At least 1/4 sec. surrounding including Waukesha County	
Village of Hales Corners		X		Yes, Village Boundary
Village of Fox Point		X		Yes
City of Oak Creek		X		Yes
City of Glendale	X		City of Glendale and periphery areas	
Village of Bayside	X		By our consultant	
City of St. Francis	X		MCAMLIS	
City of Franklin	X		No response	
City of South Milwaukee	X		City Limit	Yes
City of Greenfield	X		Southern Milwaukee County & Southeastern portions of Waukesha County	
Village of Greendale	X		We would like to have MCAMLIS create so updates will be easier	Yes
City of Cudahy	X		City Limits	

SECTION A: MCAMLIS – Topographic Files

1. Do you update the digital topographic files:	Y	N	In What Dept?	By How Many Employees	Individual Responsible for Updates	How Often
City of Wauwatosa ~~Engineering~~		X				
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek		X				
City of Glendale		X				
Village of Bayside		X				
City of St. Francis	X		Engineering	1	Peter Bayerl	Yearly or as needed.
City of Franklin	X		Engineering	2	Ronnie and Marcia	Currently updating backlog, hope to update select features as needed in the future.
City of South Milwaukee	X		Planning	1	1	As needed.
City of Greenfield	X		Engineering	2	Craig Skala & Jeff Tamblyn	Varies. If there has been a need to update an area for meetings or discussions, then we will make changes as needed for a particular event. In most other cases we have not made updates to the files. We were told that MCAMLIS had no plans to make updates in the near future. Seeing as our current files dated 1993 are getting out of date, we have started the process of updating features such as structures, pavements, etc. based on data from building permits and various plans. We have not extensively used aerial photos at this time.
Village of Greendale		X				
City of Cudahy		X				

2. Would you like to see MCAMLIS Update the topographic files more often?	Y	N	If yes, how often? Daily	Weekly	Bi-Monthly	Monthly	Qtr'y	Yearly	If yes, explain which topographic features need to be provided	Delivered in what software?
City of Wauwatosa—~~Engineering~~		X					X			AutoCAD 2002 .dwg or .dxf
Village of Hales Corners		X								
Village of Fox Point	X								Contours, buildings and roads	
City of Oak Creek	X						X		Contours & buildings	
City of Glendale	X							X	Contour lines and buildings/site improvements	ESRI
Village of Bayside	X						X		No response	
City of St. Francis	X							X	No response	AutoCAD
City of Franklin	X								At a minimum, buildings, topography, pavement edges. Others that may be of interest are?	Topo – DEM and contour coverages. Planimetric coverages and/or SDE layers.
City of South Milwaukee	X						X			XRCInfo
City of Greenfield									All features would need to be provided because changing one feature usually affects all others,	
Village of Greendale	X						X	X	All features	ESRI format; coverages, shapefiles, or geodatabase
City of Cudahy	X							X		AutoCAD

3. Do you use custom tools?	Y	N	If yes, who developed tools?	In what language was tool developed?
City of Wauwatosa	X			
Village of Hales Corners		X		
Village of Fox Point		X		
City of Oak Creek		X		
City of Glendale		X		
Village of Bayside		X		
City of St. Francis		X		
City of Franklin	X		PlanGraphics	ArcGIS
City of South Milwaukee		X		
City of Greenfield			No response	
Village of Greendale		X		
City of Cudahy		X		

4. Explain process of obtaining source materials:	
City of Wauwatosa—~~Engineering~~	An additional copy of site plan or survey could be obtained from developer, etc.
Village of Hales Corners	Village does not update – no process in place
Village of Fox Point	No response
City of Oak Creek	No response
City of Glendale	We have been expecting revised topographic maps from MCAMLIS for quite some time.
Village of Bayside	No response
City of St. Francis	Consulting engineering services
City of Franklin	Either use orthophotos, site plans in hard copy, only update buildings at this time.
City of South Milwaukee	No response
City of Greenfield	Aerial photos, surveys, construction plans and various permits on file.
Village of Greendale	N/A
City of Cudahy	No response

5. Is it important to track the history of updates?	Y	N
City of Wauwatosa—~~Engineering~~	X	
Village of Hales Corners		X
Village of Fox Point		
City of Oak Creek		X
City of Glendale	X	
Village of Bayside	X	
City of St. Francis	X	
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield (no response)		
Village of Greendale	X	
City of Cudahy		X

6. Do you think updates could be handled by an outside agency?	Y	N	If no, explain reasons
City of Wauwatosa—~~Engineering~~	X		If done with appropriate direction
Village of Hales Corners	X		
Village of Fox Point			No answer submitted
City of Oak Creek	X		
City of Glendale	X		
Village of Bayside	X		
City of St. Francis		X	Accuracy of work would be lost
City of Franklin	X		
City of South Milwaukee		X	Data integrity
City of Greenfield			No response
Village of Greendale	X		
City of Cudahy	X		

7. If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	Y	N
Village of Hales Corners		X
Village of Fox Point (no answer submitted)		
City of Oak Creek	X	
City of Glendale	X	
Village of Bayside		X
City of St. Francis		X
City of Franklin	X	
City of South Milwaukee	X	
City of Greenfield	X	
Village of Greendale	X	
City of Cudahy	X	

8. Have you successfully integrated or imported digital information from other software into the digital cadastral maps:	Y	N	If yes, what software File format	Were custom tools developed Y	Were custom tools developed N	If yes, explain
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek		X				
City of Glendale		X				
Village of Bayside	X					
City of St. Francis		X			X	
City of Franklin	X		Building and building attributes from address files imported into SDE layers in SQL Server database, buildings are updated using CAD drawing or heads up digitizing	X		No explanation
City of South Milwaukee	X		ArcInfo			
City of Greenfield	X		Various formats – namely *.dgn *.dwg, *.dxf, *.tif.			We usually reference in a file and copy as needed.
Village of Greendale	X		CAD data and others noted previously			
City of Cudahy	X				?	Done by Earthtech

9. Have you compiled a seamless map of the topographic maps?	Y	N	If Yes, what would be the desired extent of your seamless map?	If no, would you like to have this done by MCAMLIS?
City of Wauwatosa—~~Engineering~~	X		At least 1/4 sec. beyond and Waukesha County	
Village of Hales Corners		X		Yes, Village boundary
Village of Fox Point		X		Yes
City of Oak Creek	X			Oak Creek Limits
City of Glendale	X		City of Glendale and periphery areas	
Village of Bayside	X			
City of St. Francis	X			No response
City of Franklin	X		Future updates would need to be seamless	
City of South Milwaukee	X		City Limit	Yes
City of Greenfield				Not every feature in one file, but we have taken select features such as light poles and created a seamless map.
Village of Greendale	X		Village Boundaries	
City of Cudahy	X			No

SECTION B: SOFTWARE

	Y	N	If Yes, please list operating system, your staff's expertise with each, and if applicable, software what MCAMLIS product is used with each software			
Do you use GIS software?			**Software Products**	**Operating System**	**Expertise 1 (low) 3 (high)**	**MCAMLIS Product**
City of Wauwatosa	X		AutoCAD 2002	Win 98, 2000, XP	3	Most of cadastral & topo layers
City of Wauwatosa	X		ArcView 3.2	Win 98, 2000, XP	2	Structures, parking & lot lines, layers – key numbers
Village of Hales Corners		X				
Village of Fox Point		X				
City of Oak Creek	X		AutoCAD 2000	Windows 2000	3	
City of Oak Creek	X		ArcView 3.2	Windows 2000	3	
City of Oak Creek	X		Arc Map	Windows 2000	1	
City of Glendale	X		ArcGIS 8.1	MS Windows	2	Cadastral
City of Glendale	X		MicroStation	MS Windows	2	Cadastral
Village of Bayside		X				
City of St. Francis	X		AutoCAD			
City of St. Francis	X					
City of St. Francis	X		ArcView		1	
City of St. Francis	X		AutoCAD, Civil, Survey		2.5	SEWRPC
City of Franklin	X		Arc GIS 8.1	NT	1	Cadastral Address File Topo/Plan Street Centerline Orthophotos
City of Franklin	X		ArcView 8.1	N/T	2	Cadastral Address File Topo/Plan Street Centerline Orthophotos
City of Franklin	X		ArcIMS	NT	2	Cadastral Address File Topo/Plan Street Centerline Orthophotos
City of South Milwaukee	X		AutoCAD	Win 2000	2	Topo & Cadastral
City of South Milwaukee	X		ArcGIS 8.1	Win 2000	3	Topo & Cadastral
City of Greenfield	X		MicroStation SE	NT	3	Topo & Cadastral
City of Greenfield	X		ArcGIS 8.1	NT	1	Topo & Cadastral
Village of Greendale	X		ArcView 3.2	2000	2	Cadastral/Topo
Village of Greendale	X		ArcIMS	NT	2	Cadastral/Topo

	Y	N	If Yes, please list operating system, your staff's expertise with each, and if applicable, software what MCAMLIS product is used with each software			
Do you use GIS software?			Software Products	Operating System	Expertise 1 (low) 3 (high)	MCAMLIS Product
City of Cudahy		X	AutoCAD Map	Windows 2000	2	

SECTION C: INTERNET

Do you have internet access?	Y	N	If no, do you have plans to obtain access?	If yes, how soon?					If Yes, speed	If Yes, Browser
				Months			Years			
City of Wauwatosa	X								T1 768 download, 384 upload	Microsoft internet explorer 6.0
Village of Hales Corners		X	YES				1-2 yrs.		56K	Internet Explorer
Village of Fox Point	X									
City of Oak Creek	X								DSL	Internet Explorer
City of Glendale	X								128 KB	Internet Explorer
Village of Bayside	X									?
City of St. Francis	X								56 K	
City of Franklin		X	YES	?						No response
City of South Milwaukee	X								T1	IE
City of Greenfield	X								1.5 Mbps/downloads and 256K/uploading	Internet Explorer
Village of Greendale	X								56 K, DSL	Explorer
City of Cudahy	X								TI	Internet Explorer

SUMMARY OF RESPONSES

Question	Yes	No	No Reply
Do you use MCAMLIS Products?	12		0
CADASTRAL FILES			
Do you update the digital cadastral files:	6	6	
Would you like to see MCAMLIS Update the CAD files more often?	8	3	1
Do you use custom tools?	3	8	1
Is it important to track the history of updates?	10	2	
Do you think updates could be handled by an outside agency?	8	3	1
If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	8	3	1
Have you successfully integrated or imported digital information from other software into the digital cadastral maps	5	7	
Have you compiled a seamless map of the digital cadastral maps?	9	3	
TOPOGRAPHIC FILES			
Do you update the digital topographic files?	4	8	
Would you like to see MCAMLIS Update the topographic files more often?	9	2	1
Do you use custom tools?	2	9	1
Is it important to track the history of updates?	7	3	2
Do you think updates could be handled by an outside agency	8	2	2
If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?	7	3	2
Have you successfully integrated or imported digital information from other software into the digital cadastral maps?	6	5	1
Have you compiled a seamless map of the topographic maps?	9	2	1

Question	Yes	No	No Reply
SOFTWARE			
Do you use GIS software?	9	3	
GIS SOFTWARE PROGRAMS			
AutoCAD 2002	1		
AutoCAD 2000	1		
AutoCAD	3		
AutoCAD Map	1		
ArcMap1	1		
ArcView 3.2	3		
ArcView	1		
ArcGIS 8.1	5		
MicroStation	1		
MicroStation SE	1		
Civil	1		
Survey	1		
ArcIMS	2		
INTERNET			
Do you have Internet access?	10	2	

~~C~~CADASTRAL AND TOPOGRAPHIC INFORMATION

Most of the local participants use MCAMLIS information to some degree. Some are using it as their sole source of land information, which acts as a base map for their GIS. Others, such as the Village of Fox Point, are using the digital cadastral files as a base map for their utility data using AutoCAD software.

The response from the remaining municipalities was ~~coincident~~ consistent with the Technical Advisory Committee. They confirmed that they used the hard copy cadastral and topographic maps for exhibits, presentations and reports. In some instances hard copy maps are provided to individuals and/or organizations having specific needs for land data. The respondents indicated that they are not maintaining or updating the hard copy cadastral or topographic maps.

Similarly, digital information is used for a variety of applications including day to day planning, project work, plotting of utility locations, permitting, recording new construction of utility information, updating of existing land information, engineering design and analysis, and diggers hotline identification. Most of the respondents did not maintain or update the digital cadastral files. Instead, most of them rely on Milwaukee County for these services and ~~anxiously await the day when Milwaukee County will have more current~~ look forward to receiving updated information ~~available~~ on a regular basis.

Cadastral Maintenance

Of the municipalities not included on the Technical Advisory Committee, the City of Oak Creek, City of Franklin and the City of Wauwatosa are currently maintaining and updating the digital cadastral map files. The City of Wauwatosa, City of Glendale, and the Village of Fox Point have prepared seamless, or larger tile areas, than the existing one-quarter section MCAMLIS files.

Currency of Information

Cadastral Maps

All of the communities that rely on the MCAMLIS cadastral mapping products would like to see the updates provided more frequently. Since the City of Oak Creek maintains their own files, they do not need updated MCAMLIS cadastral maps. Currently, the City of Oak Creek is not forwarding their updated digital cadastral files to MCAMLIS.

Most municipalities would be interested in tracking historical information concerning changes in the cadastral and topographic information.

Topographic Maps

The majority of users would like to see the topographic map files updated more often.

Seamless Database

Although most of the respondents indicated that they have not yet compiled a seamless digital cadastral map, they all indicated that they would like MCAMLIS to recompile the digital cadastral in larger tiled areas, preferably to at least their municipal boundaries.

Data Formats

The following list represents the software systems used by the other municipalities:

Software Product	Municipality
AutoCAD 2002	City of Wauwatosa-Engineering, City of Oak Creek
AutoCAD	City of St. Francis. City of South Milwaukee, City of St. Francis
ArcView 3.2	City of Wauwatosa-Engineering City of Oak Creek, St. Francis, Village of Greendale
ArcView 8.1	City of Franklin, City of Greenfield
ArcMap	City of Oak Creek, City of Glendale, City of Franklin, City of South Milwaukee, Village of Greendale
Bentley MicroStation	City of Glendale
AutoCAD, Civil & Survey	City of St. Francis
MicroStation SE	City of Greenfield

Internet

All municipalities, with the exception of the Village of Hales Corners, have Internet access. The Village indicated that they have plans to obtain Internet service within 1-2 years. The City of Wauwatosa was the only municipality that currently has a high speed T1 connection. All other municipalities had connections speeds between 56K to 768K. This ~~could become~~is a major ~~hurdle~~ impediment with regards to accessing digital MCAMLIS and utility files over the Internet.

Local Internet ~~service~~ Service ~~providers~~Providers (ISP), such as Ameritech or Time Warner Cable, have services available at connection speeds starting at 768K, which will be adequate for accessing and downloading the MCAMLIS digital files. These services include Digital Subscriber Lines (DSL) and digital cable that can be purchased for approximately $50 per month, but may not be available in all areas. T1 lines, which provide significantly faster connection speeds (1.544 megabit per second) are more costly to install and include higher monthly fees. One-time fees for installation and routing device are approximately $2,000.

T1 (now being referred to as DS1) has the advantage of being a private, fully dedicated link from the ISP to the customer. DSL services can match the speed of DS1 but only by sacrificing distance. There is currently a 2-mile radius limit for DSL from the ISPs' point of

presence. Cable modem services can at times achieve speeds well above DS1 (a maximum of 3 megabits per second) but the available bandwidth is shared with all customers on a particular cable segment which also means the line and transported data is not secured. Average costs for a DS1 service can range between $700 to $1,200 dollars per month depending on the service contract period agreed upon and on the medium used (copper line or fiber optic line). A surcharge from the copper line or fiber optic provider may increase the monthly cost by approximately $300 (based on a 3 year contract). The surcharge fees are typically eliminated or reduced if the service is contracted with the company providing the physical line connection. Extended contracts typically include lower monthly fees.

PROTOTYPE INSTALLATION

Since Ruekert/Mielke agreed to provide the necessary hardware and software, and host the Internet Prototype, there were no additional purchases required. Ruekert/Mielke also provided the use of various web application development software licenses, including ESRI ArcIMS, Intergraph WebMap, and Autodesk MapGuide. Based on the prevalent use of ESRI software by Milwaukee County and other local municipalities, Ruekert/Mielke chose to develop the Internet Prototype with ESRI ArcIMS 4.0. This will reduce the conversion efforts, learning curve and simplify the installation efforts should Milwaukee County decide to implement a Land Information & Utility web application.

However, the large number of individual digital cadastral map files and associated layer names for similar digital map features dramatically affected the performance of the ArcIMS web application. In fact, simply loading and viewing a single U.S.P.L.S.S. one-quarter section map was so slow that an alternate web application solutions were developed and ultimately recommended. Although the layer names for each digital feature are identically named, ArcIMS retains a separate layer for each of the individual map files. For instance, the right-of-way lines in each digital file are commonly named "ROW". ArcIMS retains a separate ROW layer for each digital cadastral map file. Therefore, since there are approximately 1,000 individual one-quarter section map files, there is a similar number of layers in the web application just for right-of-way lines.

Additionally, there are approximately 50 different layer names in the existing MCAMLIS digital map specification. Assuming each digital cadastral map file includes at least one feature on each layer, the web application would include approximately 50,000 layers of data (1,000 digital maps x 50 layers). This is another reason for merging the individual cadastral map files into larger tiled areas. Once converted, the ArcIMS web application should be able to load and view the entire MCAMLIS data set as demonstrated in other county web applications.

The following tables list the hardware and software products and costs associated with the development and hosting of the Internet Prototype Web Application:

ArcIMS Hardware: Components
Microsoft Windows 2000 Server IIS 5.0
SCSI RAID 5 Hard Drive Configuration
3.0 gigabytes of Available Disk Space
1 gigabyte RAM
Dual Intel Pentium III Processors

ArcIMS Development: Components
ESRI ArcIMS 4.0 (dual processor license)
Microsoft Visual InterDev v 6.0

ArcIMS Supplemental Software: Component
New Atlanta ServletExec 4.0
Sun Microsystems Java™ 2 Runtime Environment, Standard Edition including Java™ Plug-in Version 1.3.1

Web Page Development Software: Component
Adobe PhotoShop 7.0
Microsoft PhotoDraw 2000 (discontinued)
MapEdit 2.64

ArcIMS Database: Component
Microsoft SQL Server (10 Client Access Licenses (CAL's)
Microsoft Access 2002

WEB HOSTING OPTIONS

Option 1 – Milwaukee County

The following table lists the hardware and software products and associated costs required to host the Internet Prototype Web Application:

ArcIMS Web Server:

Components	Cost
Microsoft Windows 2000 Server IIS 5.0	
SCSI RAID 5 Hard Drive Configuration	
3.0 gigabytes of available disk space	
1 gigabyte RAM (min.)	
Dual Intel Pentium III Processors	
Total Cost:	**$6,000 - $8,000**

ArcIMS & Development Software:

Components	Cost
ESRI ArcIMS 4.0*[1]	~~$7,500~~12,500

[1]*($7,500 single processor license + $5,000 for each additional processor). ~~Future enhancements may require an upgrade to a dual processor license, which costs an additional $5,000.~~A single processor license is not sufficient to process the volume of data in Milwaukee County.

ArcIMS Supplemental Software:

Component	Cost
New Atlanta ServletExec 4.0	$700
Sun Microsystems Java™ 2 Runtime Environment, Standard Edition including Java™ Plug-in Version 1.3.1	No Cost

ArcIMS Database:

Component	Cost
Microsoft SQL Server (10 Client Access Licenses (CAL's)	$3,400
Security Database[2]	$4,000-$5,000
Microsoft Access 2002	$300
Total Cost:	**$7,700-$8,700**
TOTAL HARDWARE/SOFTWARE EXPENSES	**$21,900 - $24,900**

[2]Custom security database developed by Ruekert/Mielke. See page 22 for description of use.

Annual Software Maintenance Costs:

In addition to the initial purchases, there would be annual expenses for software maintenance and technical support. The following is a list of the annual expenses:

Software	Cost
ESRI ArcIMS	$1,200
Microsoft SQL Server	$250
New Atlanta ServletExec 4.0	$50
Total Hardware/Software Expenses	**$1,500**

Option 2 – Local Web Hosting Service

In the event Milwaukee County is not interested in hosting the Land and Utility Information System Web Application, MCAMLIS could contract with a local web hosting service. The following is a list of required services and estimated costs for web hosting services:

Required Services	Cost
Data Storage and Web Hosting: (includes hardware, software licenses, yearly software maintenance fees)	*$600 - $900 per month
Data Maintenance: (includes appending or replacing available data sets)	$200 - $400 per update
Additional Web Page or ArcIMS Development	$40 - $85 per hour
Total Monthly Data Storage and Web Hosting Fees	**$800 - $1,300**

*Based on Ruekert/Mielke's web hosting services. Infinity Technology, Green Bay, WI and Smart Data Strategies (SDS), Franklin, TN provide similar services and comparable web hosting fees.

Since the digital cadastral maps are currently up-to-date and will be updated and maintained on a regular basis to within 60 days of the recorded date, the updated digital cadastral maps could be uploaded to the web application to coincide with the maintenance efforts. However, since the upload process will require some time and effort, it is reasonable to expect that the latest digital cadastral maps could be uploaded on at least a monthly basis, which would accommodate the needs of the local municipalities based on their responses in the questionnaire. Hence, the yearly cost for data maintenance associated with the web application would range between $2,400-$4,800.

The following additional services and costs to modify the web pages or enhance the ArcIMS web application:

Additional Services	Cost
Web Page or ArcIMS Development	$40 - $85 per hour
Web Application Upgrade (dependent upon the extent of the software enhancement)	$1,000 - $2,000 per update
Data Conversion (Convert existing digital files into larger tiles and to standard specifications)	$250 - $400 per update

Web Services Cost Comparison

Milwaukee County					
Initial Setup			**Yearly Maintenance**		
Task	Low Cost	High Cost	Task	Low Yearly Costs	High Yearly Costs
GIS web based server software (Dual processor license)	$12,500	$12,500	Software Support & Maintenance	$1,500	$2,500
Microsoft SQL Server, 10 Client Access Licenses	$3,500	$3,500	Software Maintenance	$250	$250
Supplemental Software	$1,000	$2,000	Software Maintenance	$50	$100
Security Database	$4,000	$5,000			
Hardware (Dual Processor CPU, Firewall)	$8,000	$12,000	Internal IT Support	$3,000	$4,000
Installation & Configuration	$2,000	$3,000	Programming Support	$4,000	$5,000
			Hardware Upgrades (2-3 year replacement)	$2,000	$3,000
			Data Maintenance	$4,000	$8,000
Total Costs	**$31,000**	**$38,000**		**$14,800**	**$22,850**

Ruekert/Mielke Data Storage and Hosting Services					
Initial Setup			**Yearly Maintenance**		
Task	Low Cost	High Cost	Includes:	Cost Range	
Security Database	$4,000	$5,000	Hardware Upgrades	included	
			Software Upgrade	included	
			Support & Maintenance	included	
			IT Support	included	
			Programming Support	included	
			Secured Site	included	
			Subtotal	$7,200	$10,800
			Data Maintenance	$2,400	$4,800
Total Costs	**$4,000**	**$5,000**	**Total Costs**	**$9,600**	**$14,800**

Web Hosting services can be contracted for, and invoiced on a monthly (minimum 6 months) or yearly basis.

Actual Web Hosting Service Fee will be determined based on the amount of disk storage space required to host the County's data and the extent and complexity of the web application. Extended agreements (over 1 year) would reduce the monthly fee.

Data Maintenance may include features such as parcels, utilities, zoning, voting districts, etc. and will vary based on the amount of data and frequency of updates.

MCAMLIS Participant Requirements:

The following is a list of software requirements to access the web application:

Hardware/Software Requirements	Cost
Microsoft Windows XP PRO	$300
Microsoft Internet Explorer v 5.0 or newer – universal (ie Netscape)	No Cost
Monitor w/1024 x 768 screen resolution (min.)	$300-$600

Recommendation

Based on the current budget ~~restraints~~ constraints in Milwaukee County, the lack of trained technical staff with regards to ArcIMS development and support, and improbability that additional positions will be added, it would seem to make the most sense to have the data and web application hosted by a web hosting service provider. Should Milwaukee County decide to take over the maintenance and hosting in the future, the web application can be simply removed from the web hosting service providers' server and installed on a County server. ~~for approximately $1,500.~~ The cost to hire a web hosting service provider to remove and re-install the web application is approximately $1,500.

SECURITY

Based on concerns regarding access to various data sets, including water distribution and public utility facilities, a secured web page and login process was designed which requires an authorized user name and password. Since sophisticated hackers have been able to compromise even the most secure computer networks, and the fact that most of the information is readily available through direct contacts with the data suppliers (e.g. MCAMLIS, We Energies, City of Milwaukee, etc.) the security measures and encryption built into the secured web page and login process are faily simple. A Microsoft SQL Server database table contains the available user names, passwords, and associated rights. Each web page requires authentification which is established during the login process~~A Microsoft SQL Server database was created to store the user names and passwords.~~ Each of the participants was provided unrestricted, and unlimited, access to query and view the available digital information.

However, the database design will support the creation of user groups, which may be required to restrict or limit access to similar, or different data sets.

Ruekert/Mielke has taken several steps to protect its Internet services from hardware failure, data loss, power loss, connection loss, intrusion, and infection.

All Ruekert/Mielke web servers are protected from data loss through the use of multiple disk drives creating either a mirrored pair of drives or an array of drives. If any one drive were to fail, the data is still active. Regular backups are also done on a rotation to high capacity tapes, which are stored off site. ~~Power loss is also protected against through the use of UPS or Uninterruptible Power Supply.~~A UPS (Uninterruptible Power Supply) is used to protect against power loss. The

UPS's for the web services computers have added external batteries attached and stand-by, high capacity UPS's for long-term power outages.

Ruekert/Mielke's facility utilizes a Time Warner Telecom's Synchronous Optical Network (SONET) fiber optic ring for its telecommunication needs. The SONET fiber ring provides a complete, underground, self-repairing, fiber optic solution with no copper lines between Ruekert/Mielke and Time Warner Telecom.

Intrusion and infection from the Internet are the most dangerous aspects of doing e-commerce. Ruekert/Mielke's first line of defense is the Cisco PIX firewall. A firewall is a device which blocks all unwanted traffic and examines all data it does allow to pass through. Network Associates Netshield virus-scanning software is also used to protect against the constant threat of virus attack. The software is regularly updated with the latest virus definition files on an hourly basis.

The firm is also evaluating a new product called Entercept. Entercept will monitor all activities on the web services computers and watch for any event it considers disruptive to the normal operations of the computer. Monitoring new viruses and uploading patches is not necessary since Entercept will stop any event that could destroy files or give improper access to different levels of the computer.

Recommendation

Regardless of the decision pertaining to web hosting options, the Land and Utility Information System Web Application should include a secured web site with login capabilities. A separate security database, using an server based database manager, such as Microsoft Access, SQL Server, Oracle, or Sybase, should be developed with user and group access rights. Since We Energies recently developed a license agreement for their facility data, and the City of Milwaukee Water Works is not certain if, and how much of their data they will release, the security database should be designed to limit access to those organizations that have executed the appropriate license agreement. The security database should allow for selected We Energies and City of Milwaukee personnel to update that portion of the security database that controls the distribution of their data. Users could be easily added, deleted, or modified over the internet. Potential users would be able to instantaneously login and download the requested data following the insertion of their user name and password. This will dramatically reduce the effort of compiling and distributing data via email, compact disks (CD), or digital versatile disks (DVD).

The development costs for the security database is estimated to cost $4,000 - $5,000.

INTERNET WEB APPLICATION

Prototype Sites

Based on Technical Advisory Committee feedback and their data requirements, three (3) prototype web-based applications were developed for review and comment. The following is a description for each of the web-based applications:

Option 1 - ArcMap Server (Converted Data)

Web Application Software: ESRI ArcIMS & ArcMap Server
Data Storage: ESRI ArcMap.

The latest release of ArcIMS (version 4.0) includes an extension called ArcMap Server. This extension permits the creation of an Internet Map Service that is capable of reading data directly from an ArcMap document. In turn, ArcMap can directly read most all of the file formats in use by the participants, thereby eliminating any need for conversion. This is particularly useful for displaying text features that were previously required to be converted in version 3.1. The only exception being We Energies' gas operations land base that is maintained as SmallWorld GIS files. Since these were provided for the study as ArcInfo Export (Interchange) files, they could be extracted to ArcInfo coverages, which can be read directly by ArcMap as well.

All of the digital files were converted into an ArcMap document and rectified to the MCAMLIS geodetic reference framework. Each data layer was available for display in the web-based application. Users would be able to view and download the available data sets for selected geographic areas. Data from different data providers, such as the City of West Allis, Village of Brown Deer or MMSD, could be overlaid and viewed simultaneously.

The digital quarter-section cadastral and topographic files provided one of the greatest challenges. Because these digital maps are maintained as 1 file per quarter-section for the topographic maps and 10 files for the cadastral map data, the load time was extremely slow (2 minutes). This would produce thousands of map layers over the entire MCAMLIS region. Thus, the preparation of county-wide seamless files, or larger tiled areas, would significantly decrease the loading time.

Option 2 - ArcIMS (Data Extract)

- Web Application Software: ESRI ArcIMS
- Data Storage: Native File Format

A Milwaukee County base map was prepared containing selected digital cadastral related features, such as street centerlines, street names, hydrography, highways, U.S.P.L.S.S. one-quarter section and section lines. Users can either query by municipality, section number, or one-quarter section number, or navigate to specific areas by utilizing various zoom and pan functions. Since the TAC felt most end users would know the contents of the available data sets, they did not feel the display of this information was necessary. Instead, sample views, or thumbnails, of the available data, could be viewed prior to downloading. The biggest advantage of this web application was the increased amount of base map information provided to assist the end user with identifying the specific area, and navigational tools.

Option 3 - Image (HTML Document)

Web Application Software: Custom HTML programming
Data Storage: Native File Format

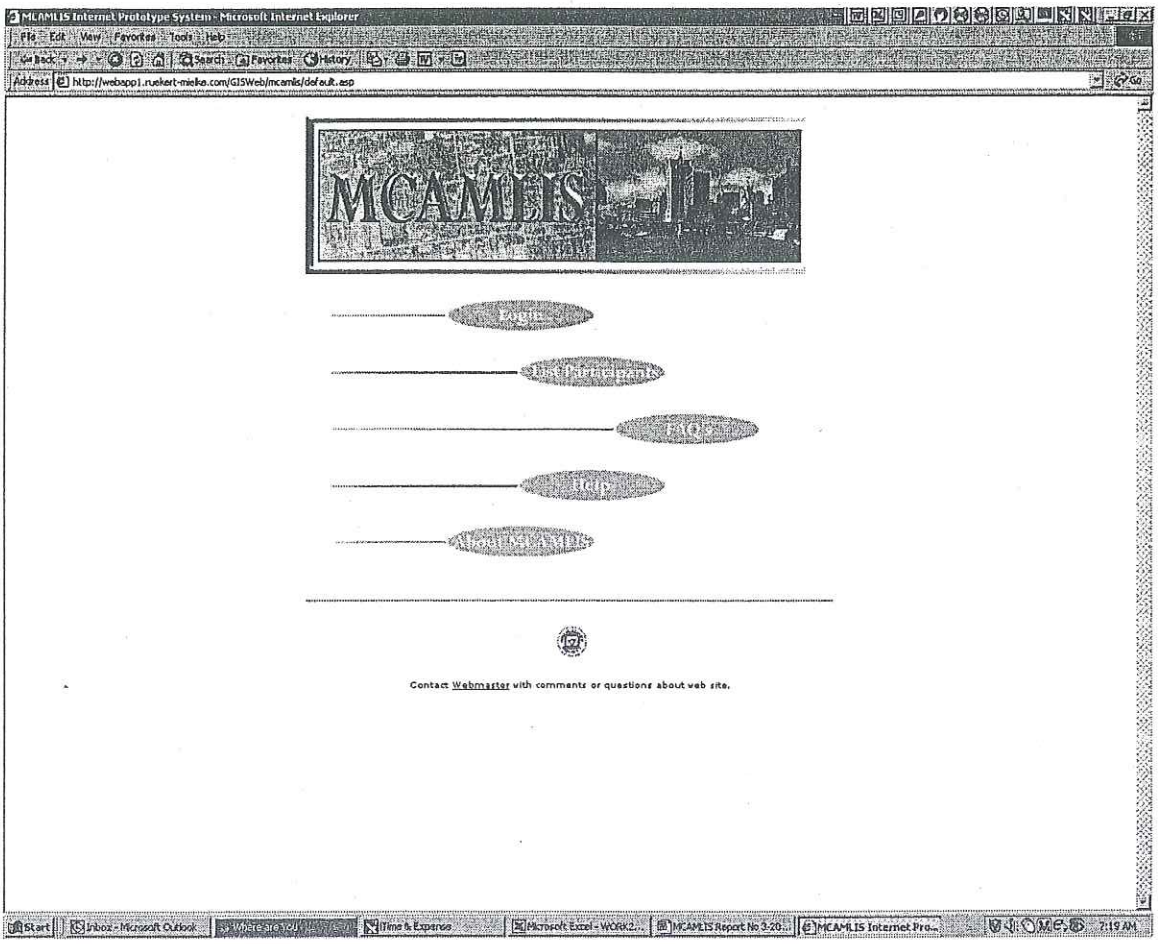
Three (3) separate images (.jpg) of Milwaukee County were created to guide the user through the selection process. One image included the municipal boundaries. A second image included the U.S.P.L.S.S. section lines and numbers. A third image included U.S.P.L.S.S. one-quarter section lines and Milwaukee County Map Sheet numbers. A user would first select the type of geographic search: by municipality, by section, or by one-quarter section. The map display would load the map image corresponding to the selected geographic search method. Next, the user selects available map data by clicking on the desired geographic area within the image map. A list of available digital files is returned to the screen. The user checks the boxes of the digital files they are interested in acquiring. Actual digital map files are not viewable. This web application was built with the premise that most technical users would know the contents of the particular data set they were looking for. If desired, contents of the digital files could be displayed as an image file. Eliminating conversion efforts required for viewing available digital files would save on conversion costs and would eliminate any concern regarding system performance. Since this web application does not include a mapping interface, users would not be able to navigate within the map image. This web interface utilizes standard HTML programming and images of the Milwaukee County base map. MapEdit 2.64 was used to prepare the Milwaukee County map images.

Recommendation

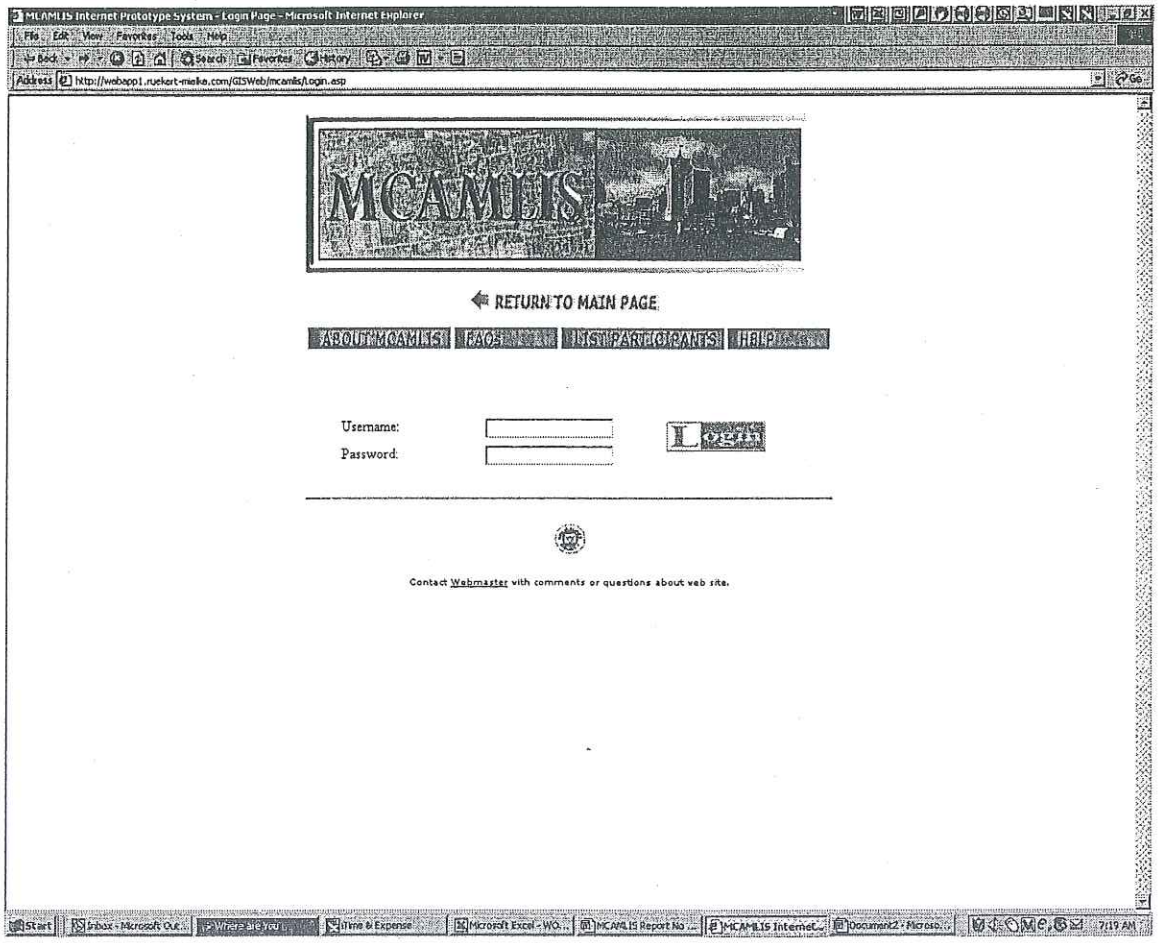
Based on feedback from a majority of the Technical Advisory Committee members, Option 2 - ArcIMS (Data Extract) was the easiest and most practical to implement. In addition to the current search criteria, the web application should include the ability to select multiple sections or one-quarter section map areas by simply clicking on multiple geographic areas or by defining two corners of a selection window. Since ArcIMS supports this type of selection process, the effort to enhance the web application will be nominal.

Screen shots for all of the Internet Prototype Web Applications appear on the following pages:

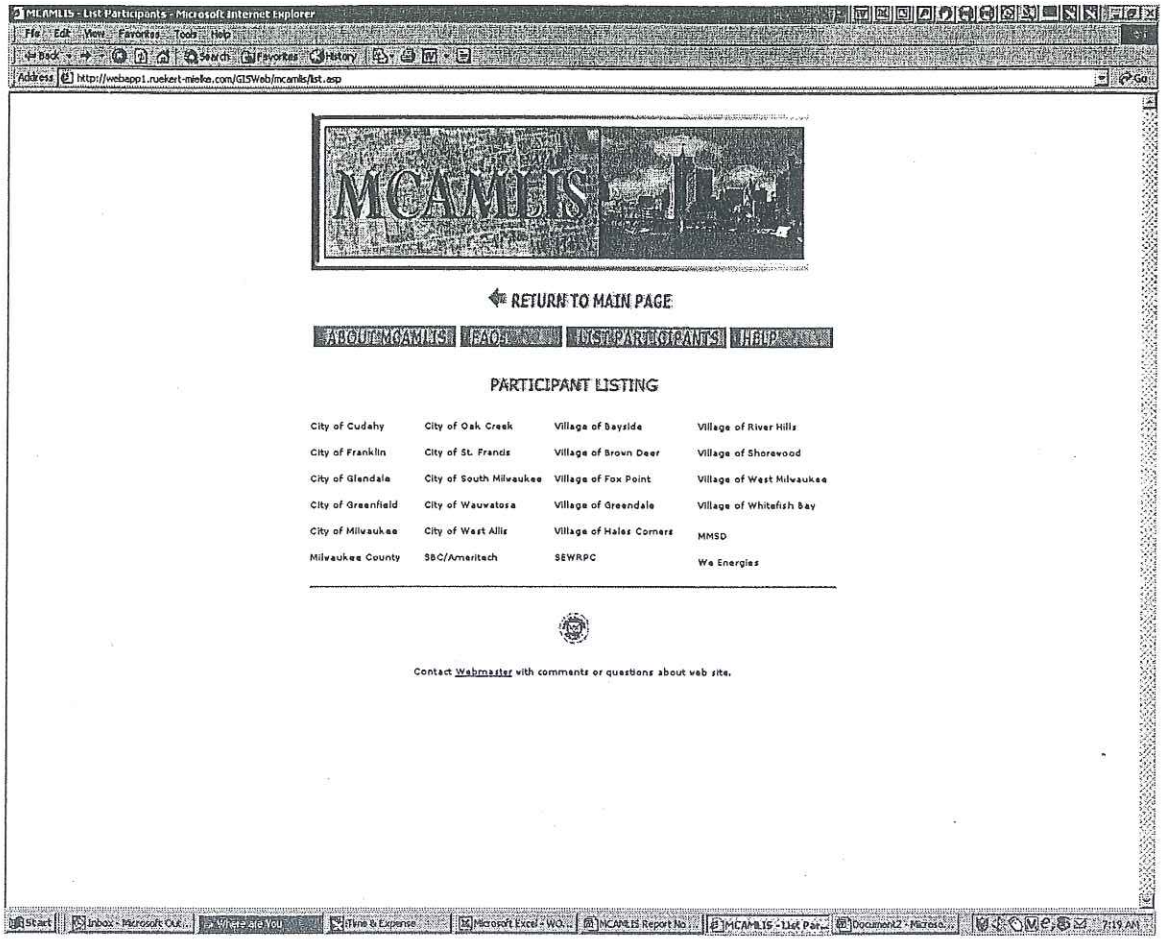
SAMPLE PROTOTYPE WEB PAGES



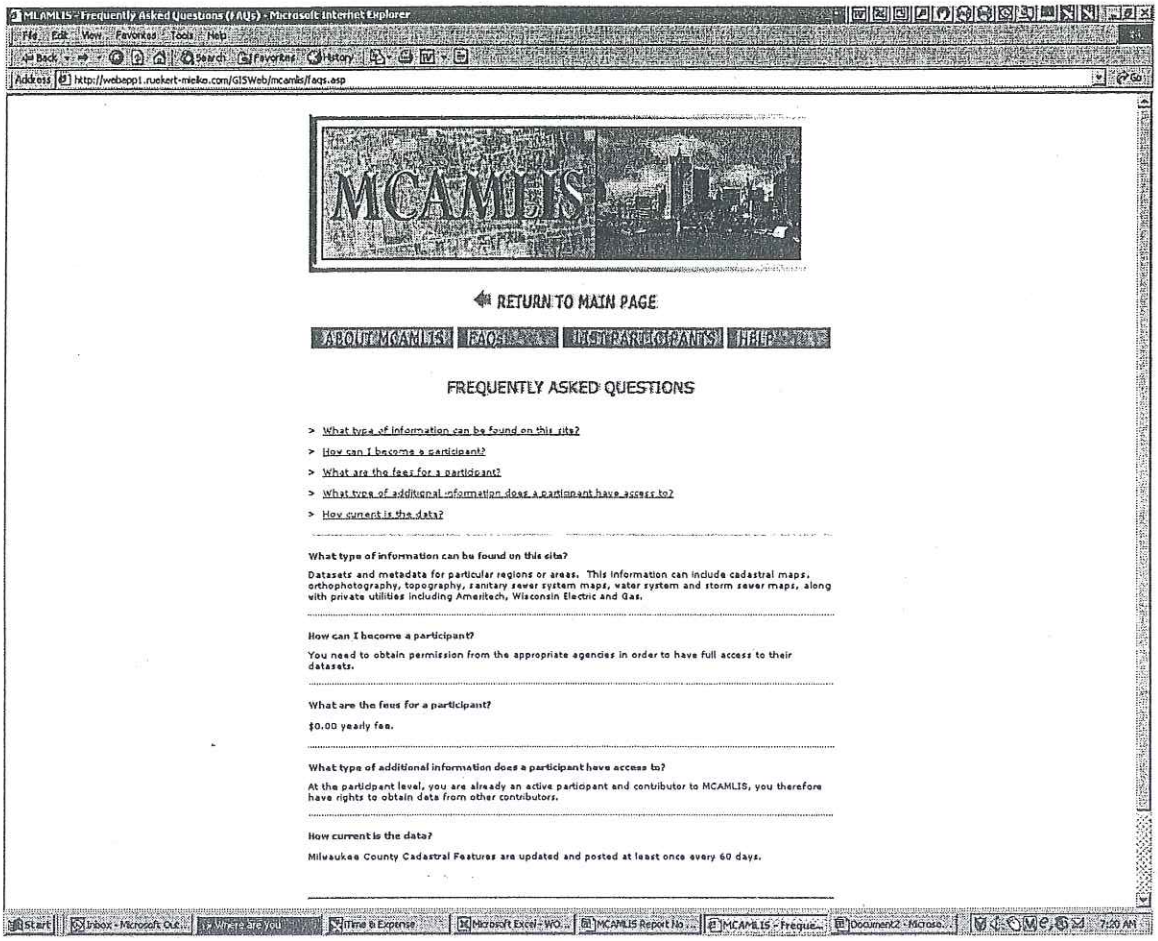
MCAMLIS Main Page



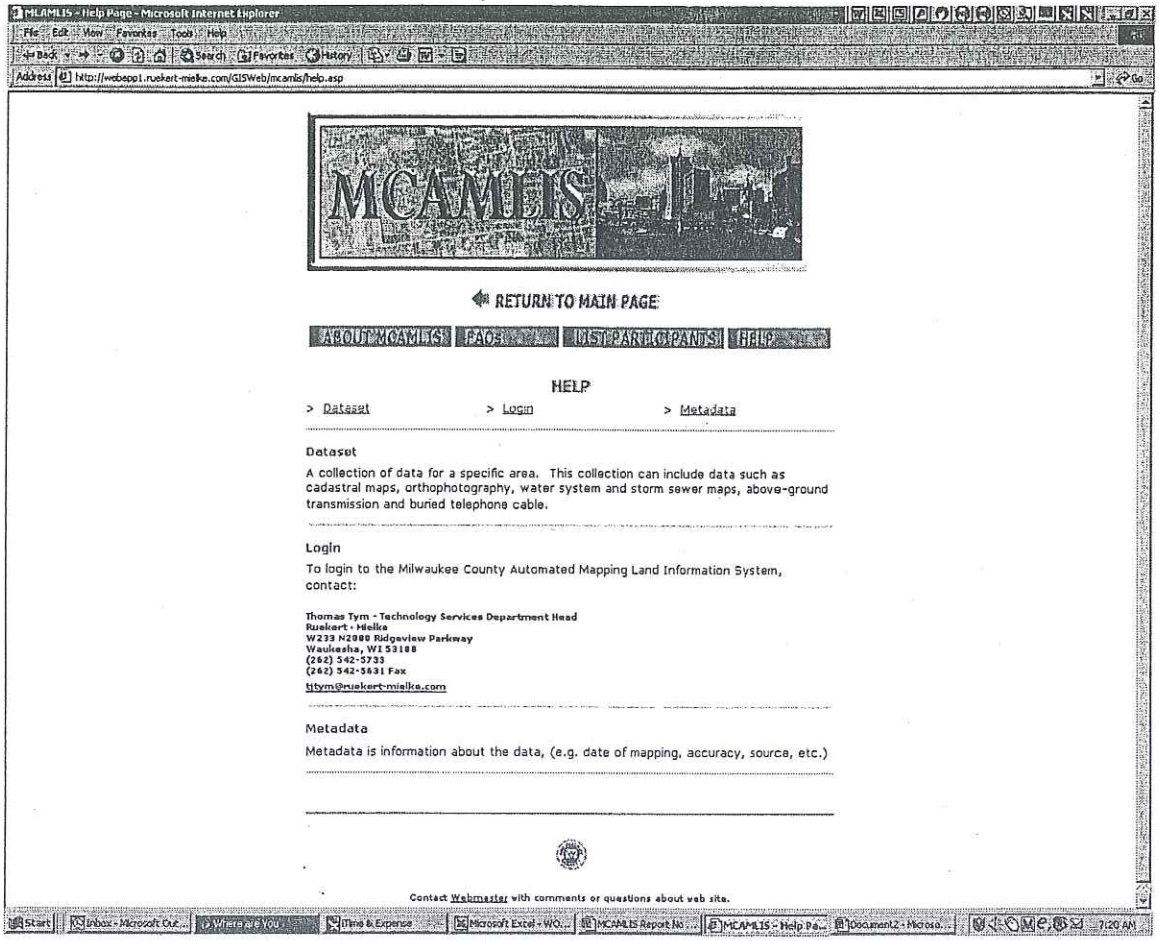
MCAMLIS Login Page



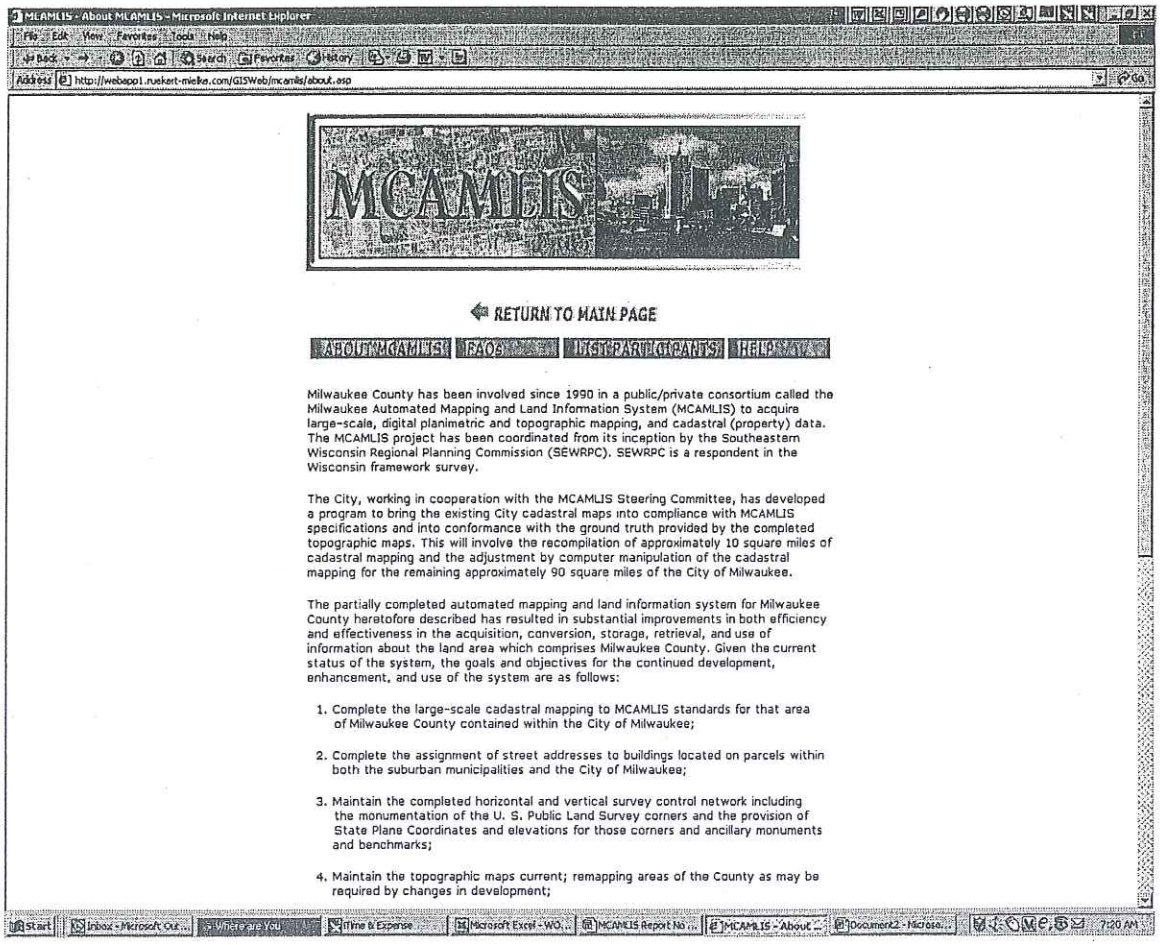
MCAMLIS Data Sharing Participants



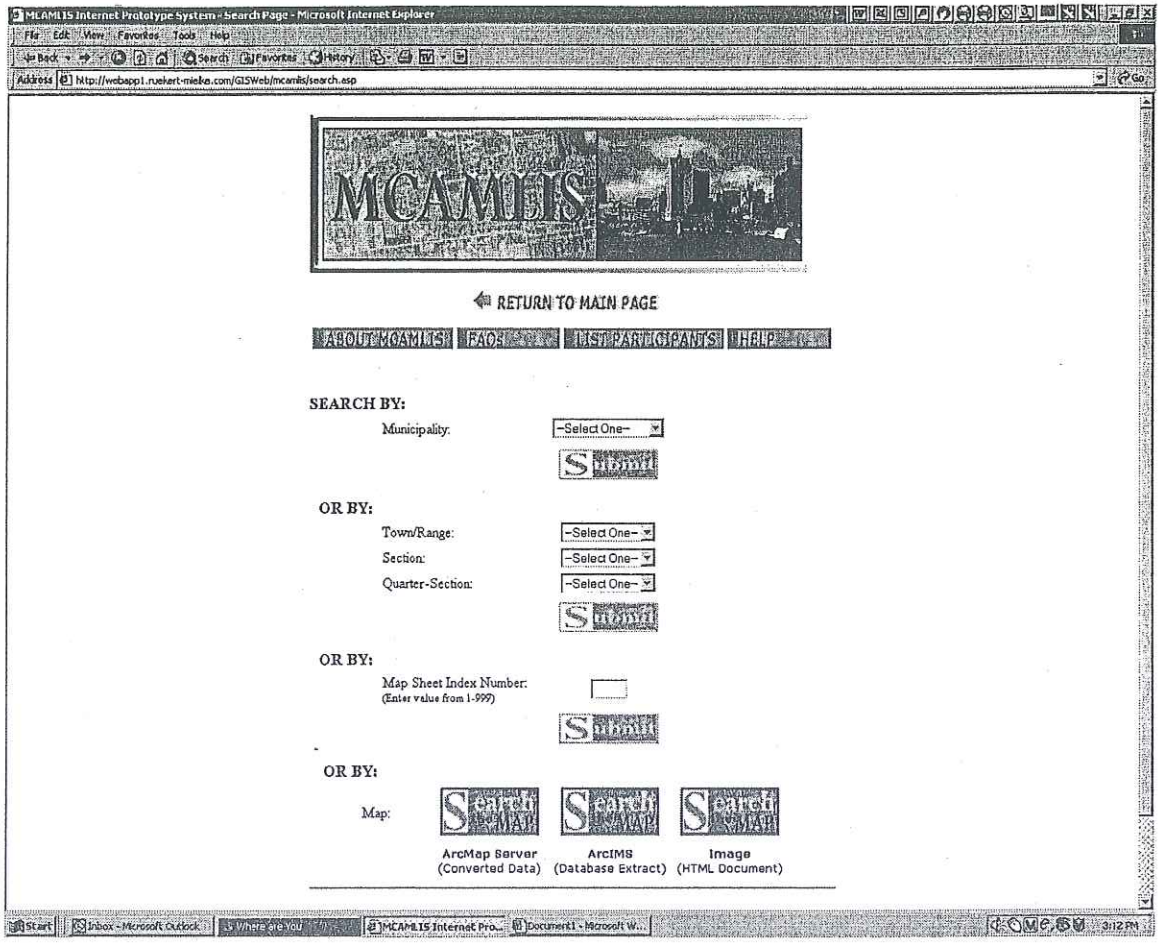
MCAMLIS Frequently Asked Questions (FAQ)



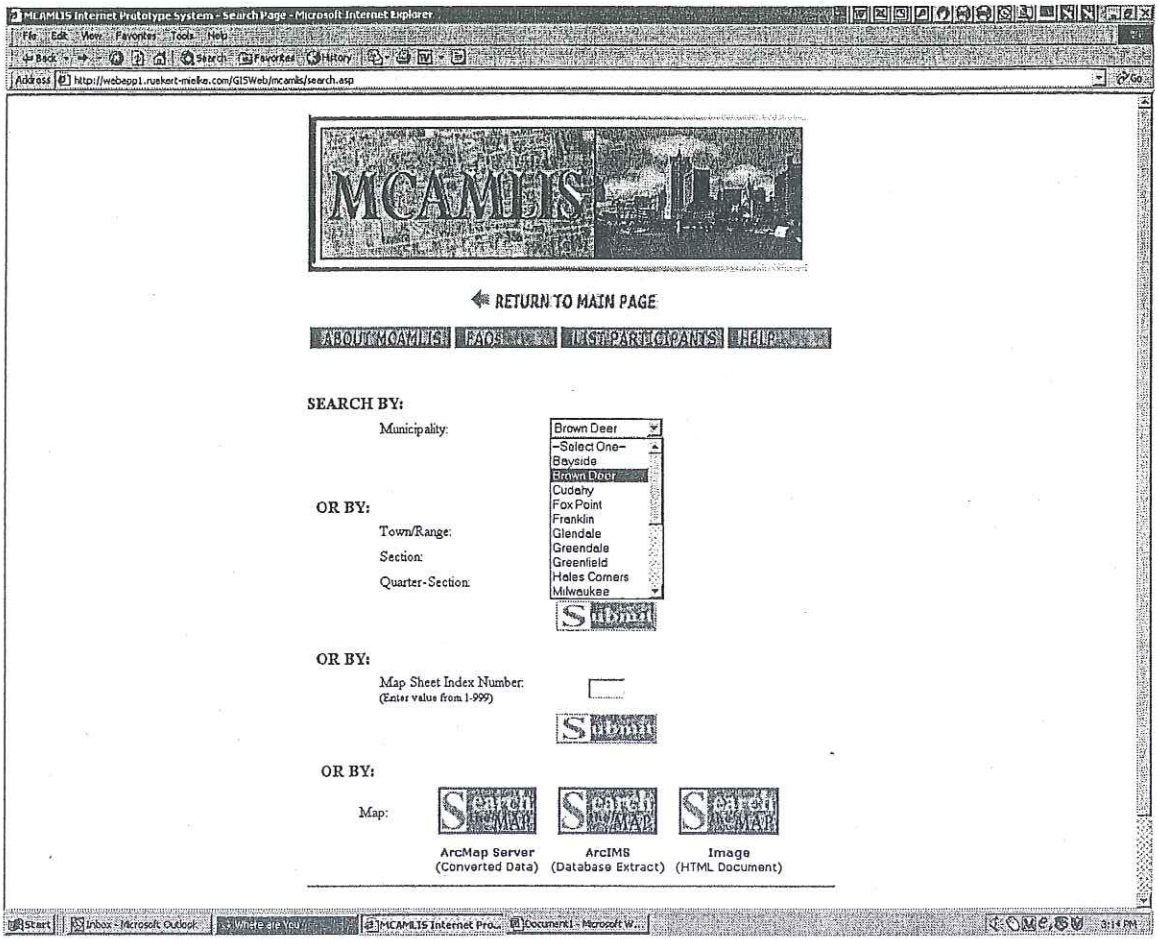
MCAMLIS Help Page



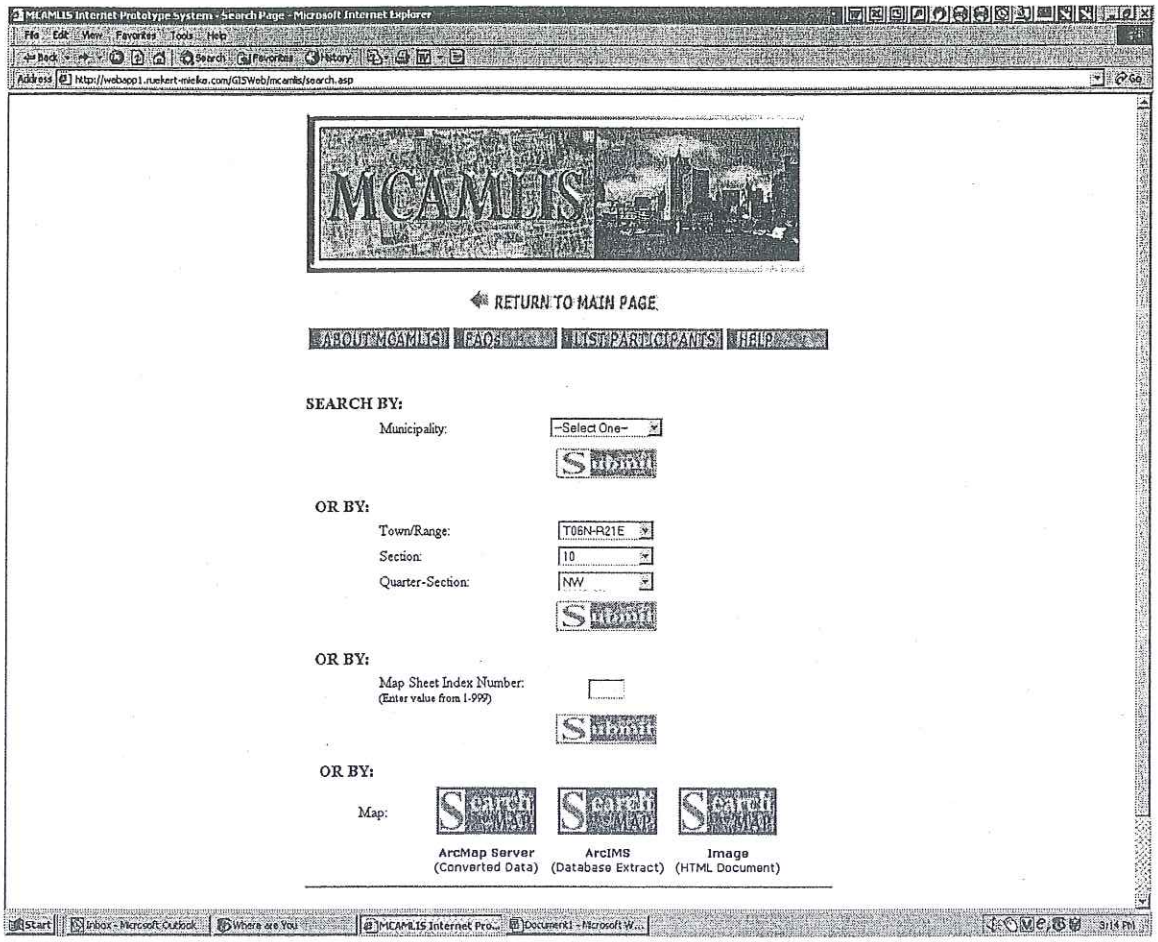
About MCAMLIS Web Page



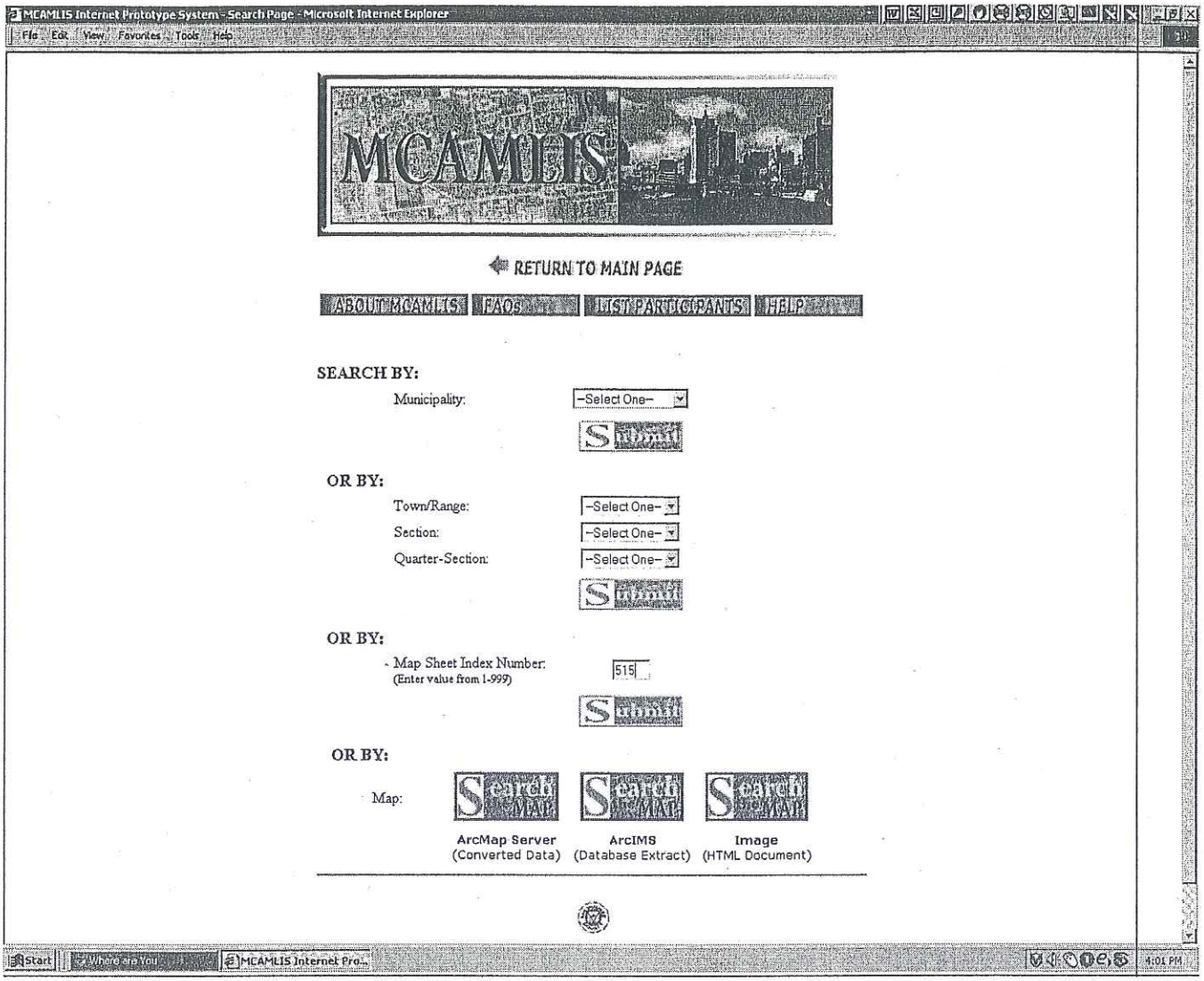
MCAMLIS Prototype Main Search Web Page



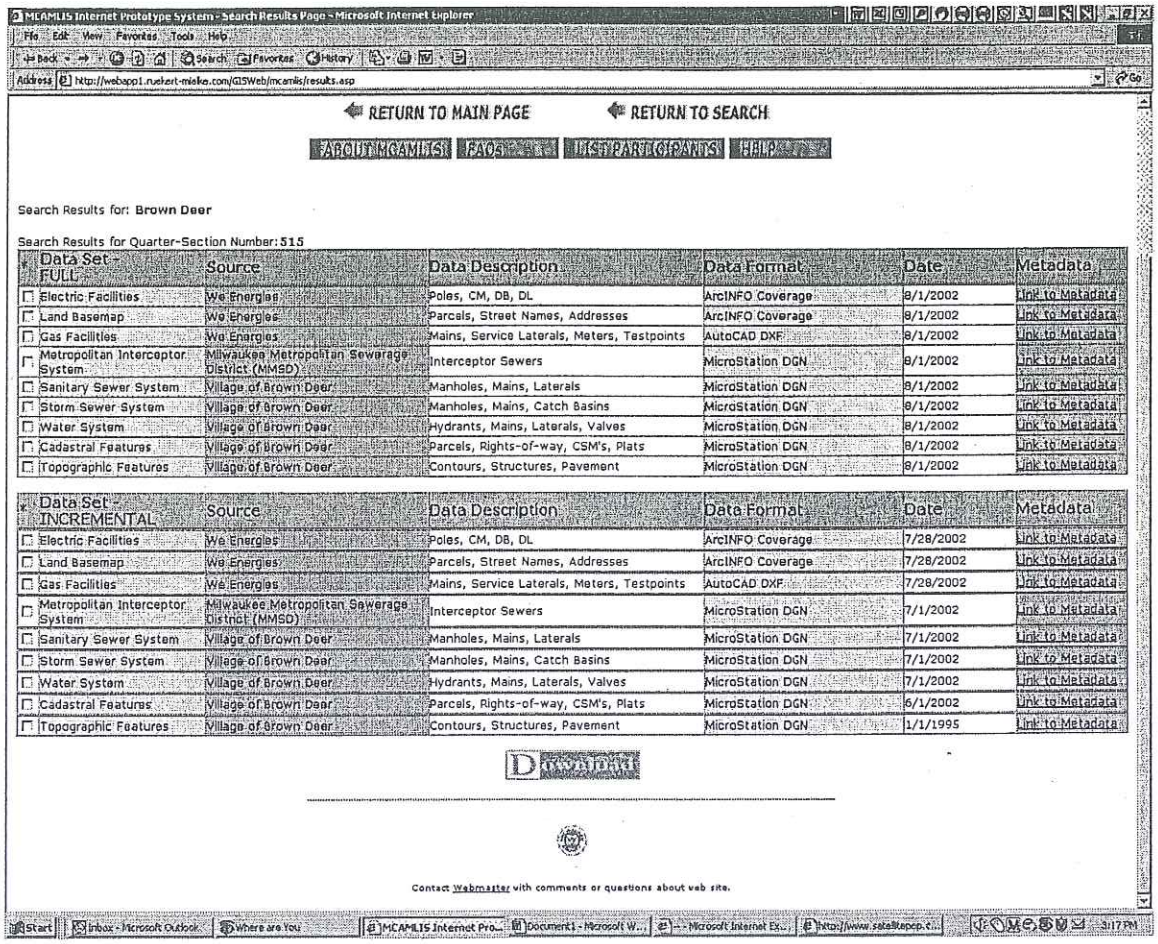
Search by: Municipality



Search by: Town, Range, Section or One-quarter Section



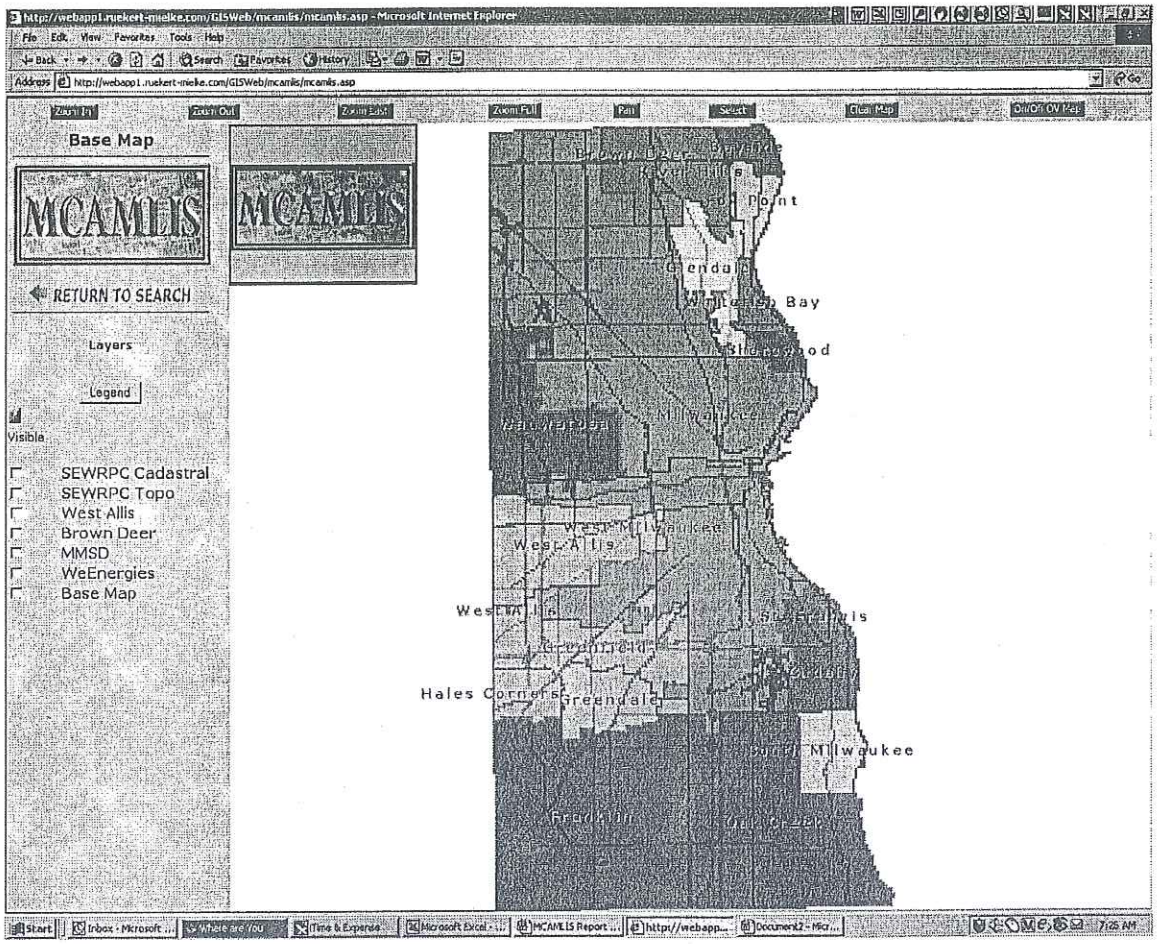
Search by: MCAMLIS Map Sheet Index Number Page



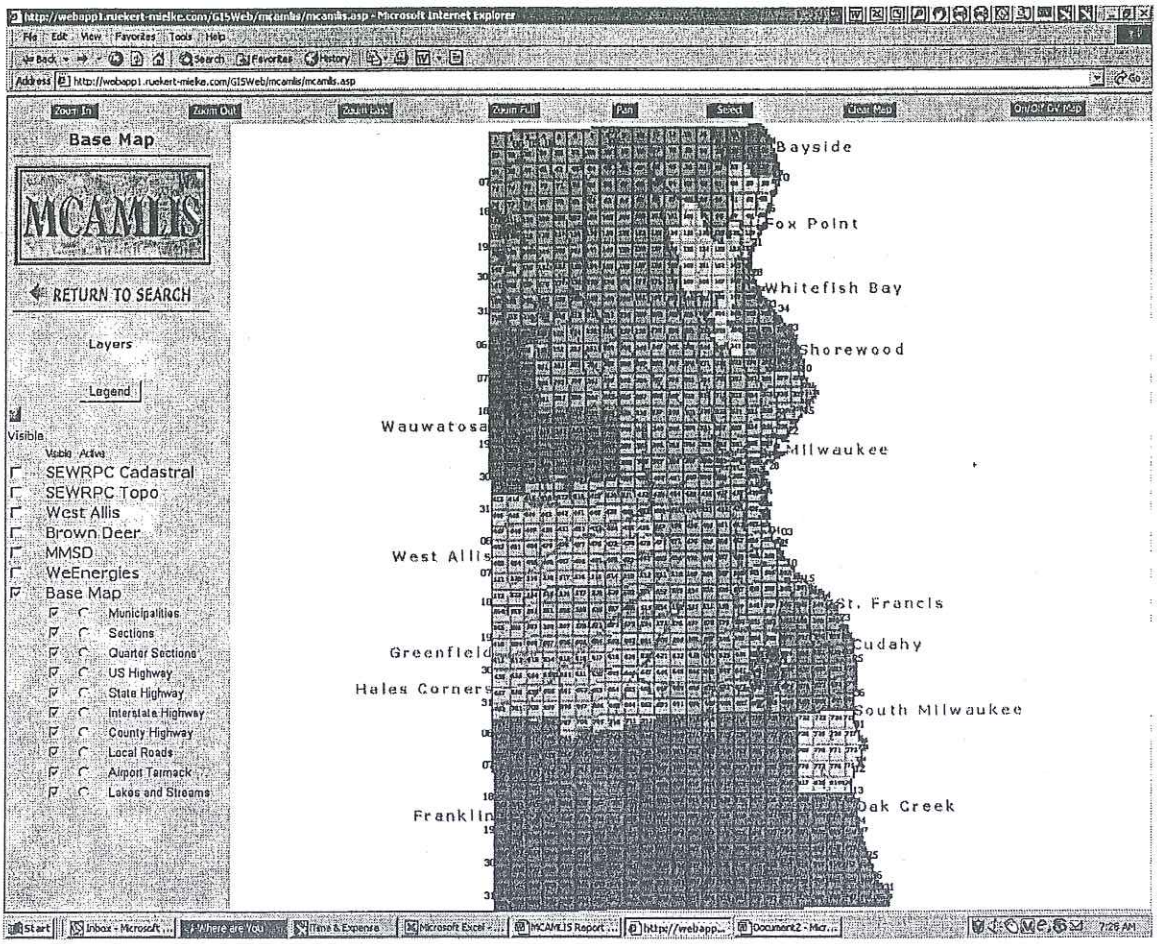
Data Set - FULL	Source	Data Description	Data Format	Date	Metadata
Electric Facilities	We Energies	Poles, CM, DB, DL	ArcINFO Coverage	8/1/2002	Link to Metadata
Land Basemap	We Energies	Parcels, Street Names, Addresses	ArcINFO Coverage	8/1/2002	Link to Metadata
Gas Facilities	We Energies	Mains, Service Laterals, Meters, Testpoints	AutoCAD DXF	8/1/2002	Link to Metadata
Metropolitan Interceptor System	Milwaukee Metropolitan Sewerage District (MMSD)	Interceptor Sewers	MicroStation DGN	8/1/2002	Link to Metadata
Sanitary Sewer System	Village of Brown Deer	Manholes, Mains, Laterals	MicroStation DGN	8/1/2002	Link to Metadata
Storm Sewer System	Village of Brown Deer	Manholes, Mains, Catch Basins	MicroStation DGN	8/1/2002	Link to Metadata
Water System	Village of Brown Deer	Hydrants, Mains, Laterals, Valves	MicroStation DGN	8/1/2002	Link to Metadata
Cadastral Features	Village of Brown Deer	Parcels, Rights-of-way, CSM's, Plats	MicroStation DGN	8/1/2002	Link to Metadata
Topographic Features	Village of Brown Deer	Contours, Structures, Pavement	MicroStation DGN	8/1/2002	Link to Metadata

Data Set - INCREMENTAL	Source	Data Description	Data Format	Date	Metadata
Electric Facilities	We Energies	Poles, CM, DB, DL	ArcINFO Coverage	7/28/2002	Link to Metadata
Land Basemap	We Energies	Parcels, Street Names, Addresses	ArcINFO Coverage	7/28/2002	Link to Metadata
Gas Facilities	We Energies	Mains, Service Laterals, Meters, Testpoints	AutoCAD DXF	7/28/2002	Link to Metadata
Metropolitan Interceptor System	Milwaukee Metropolitan Sewerage District (MMSD)	Interceptor Sewers	MicroStation DGN	7/1/2002	Link to Metadata
Sanitary Sewer System	Village of Brown Deer	Manholes, Mains, Laterals	MicroStation DGN	7/1/2002	Link to Metadata
Storm Sewer System	Village of Brown Deer	Manholes, Mains, Catch Basins	MicroStation DGN	7/1/2002	Link to Metadata
Water System	Village of Brown Deer	Hydrants, Mains, Laterals, Valves	MicroStation DGN	7/1/2002	Link to Metadata
Cadastral Features	Village of Brown Deer	Parcels, Rights-of-way, CSM's, Plats	MicroStation DGN	6/1/2002	Link to Metadata
Topographic Features	Village of Brown Deer	Contours, Structures, Pavement	MicroStation DGN	1/1/1995	Link to Metadata

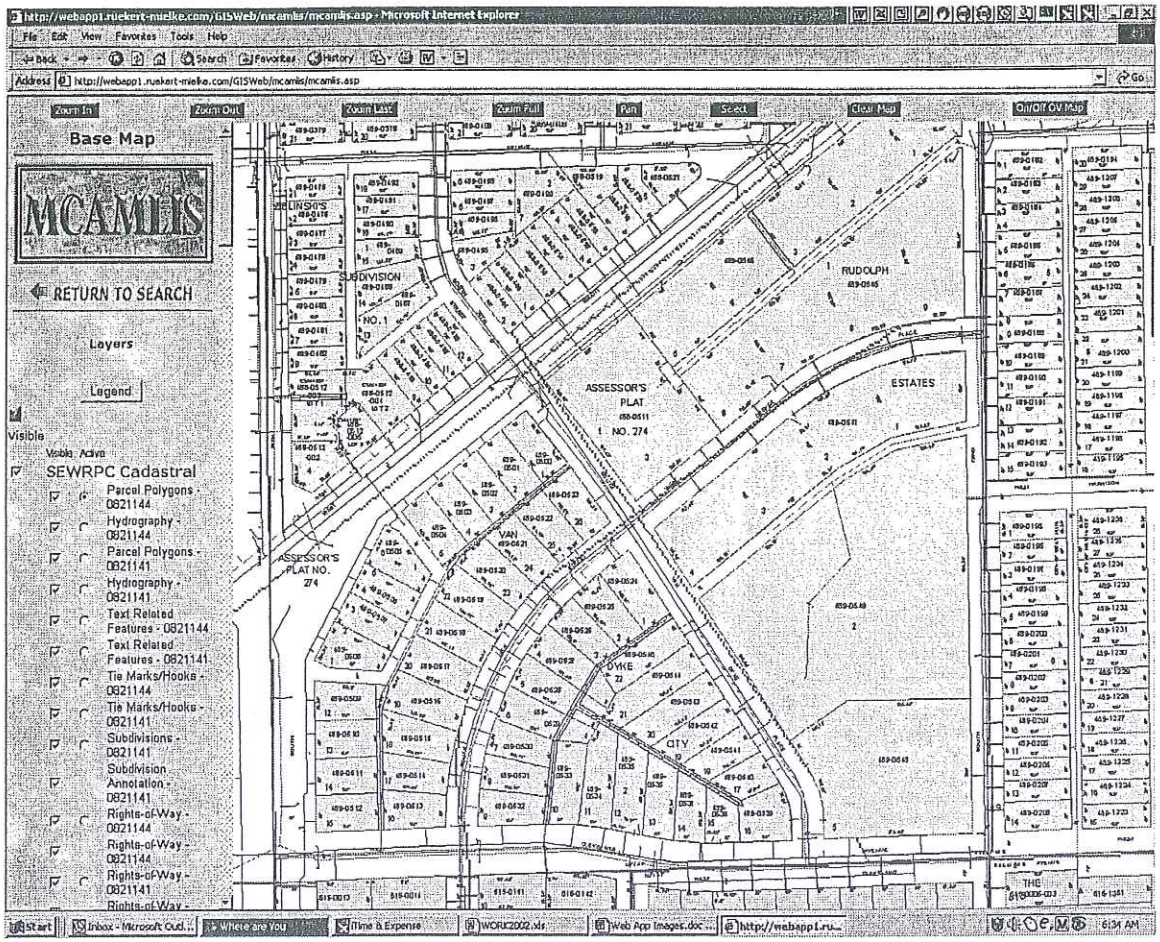
Search Results Page



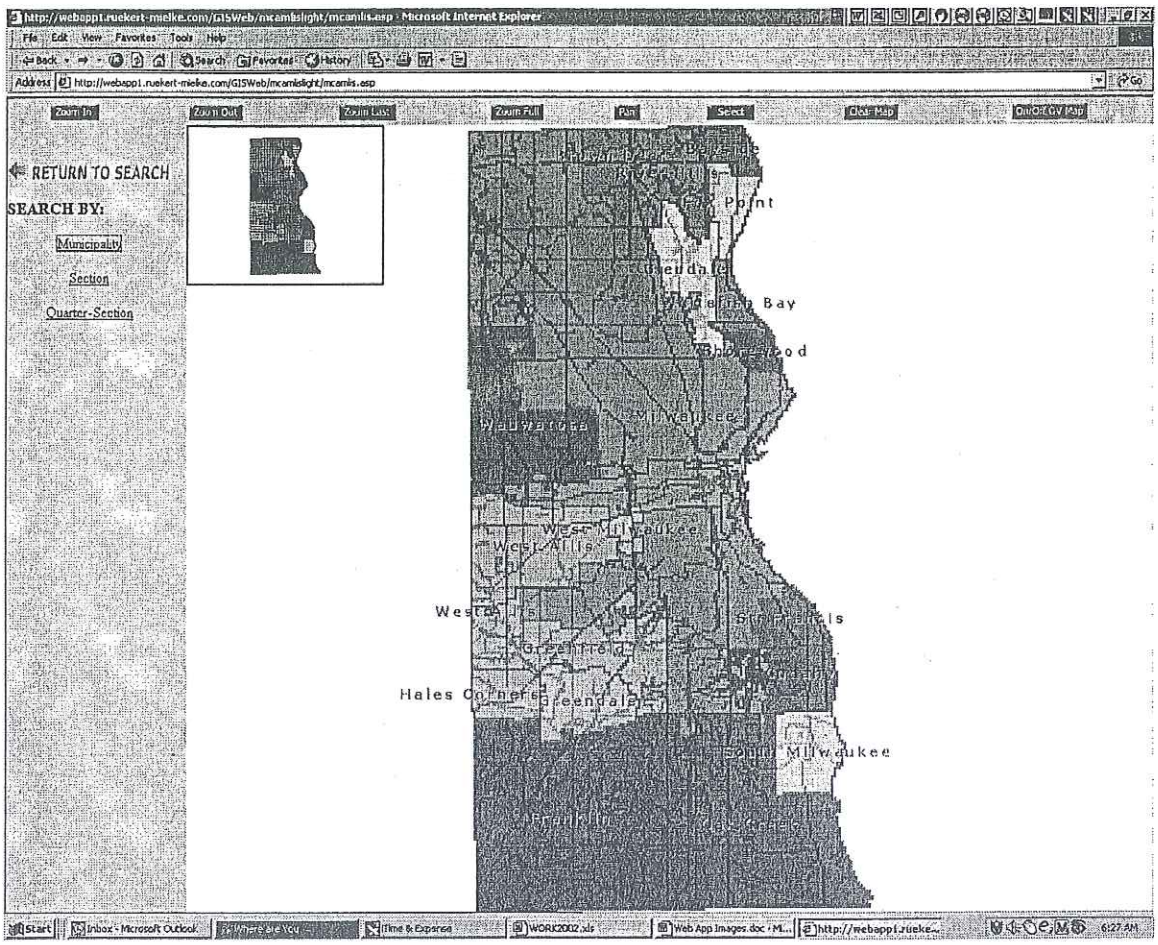
Option 1: ArcMap Server (Converted Data) – Search Page



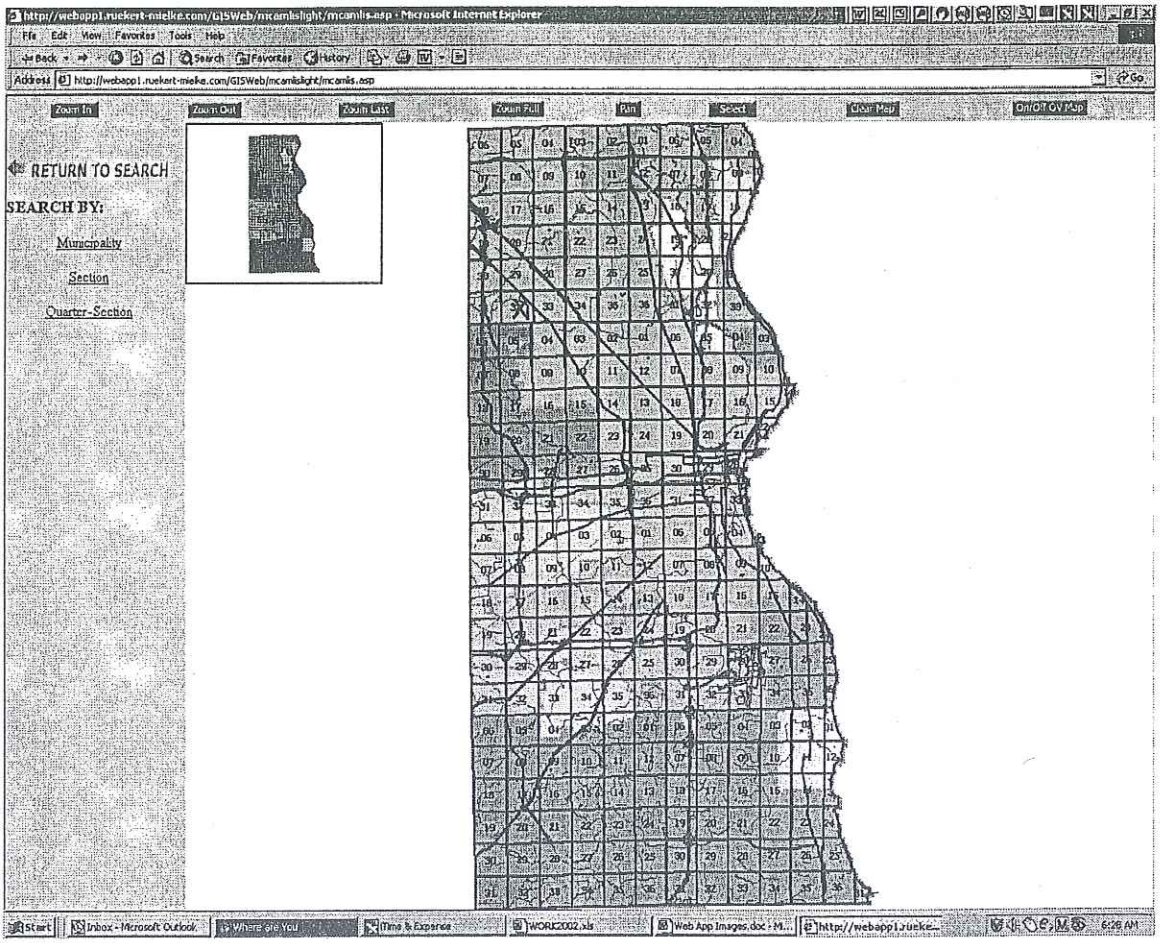
Option 1: ArcMap Server (Converted Data) – Display Base Map Features



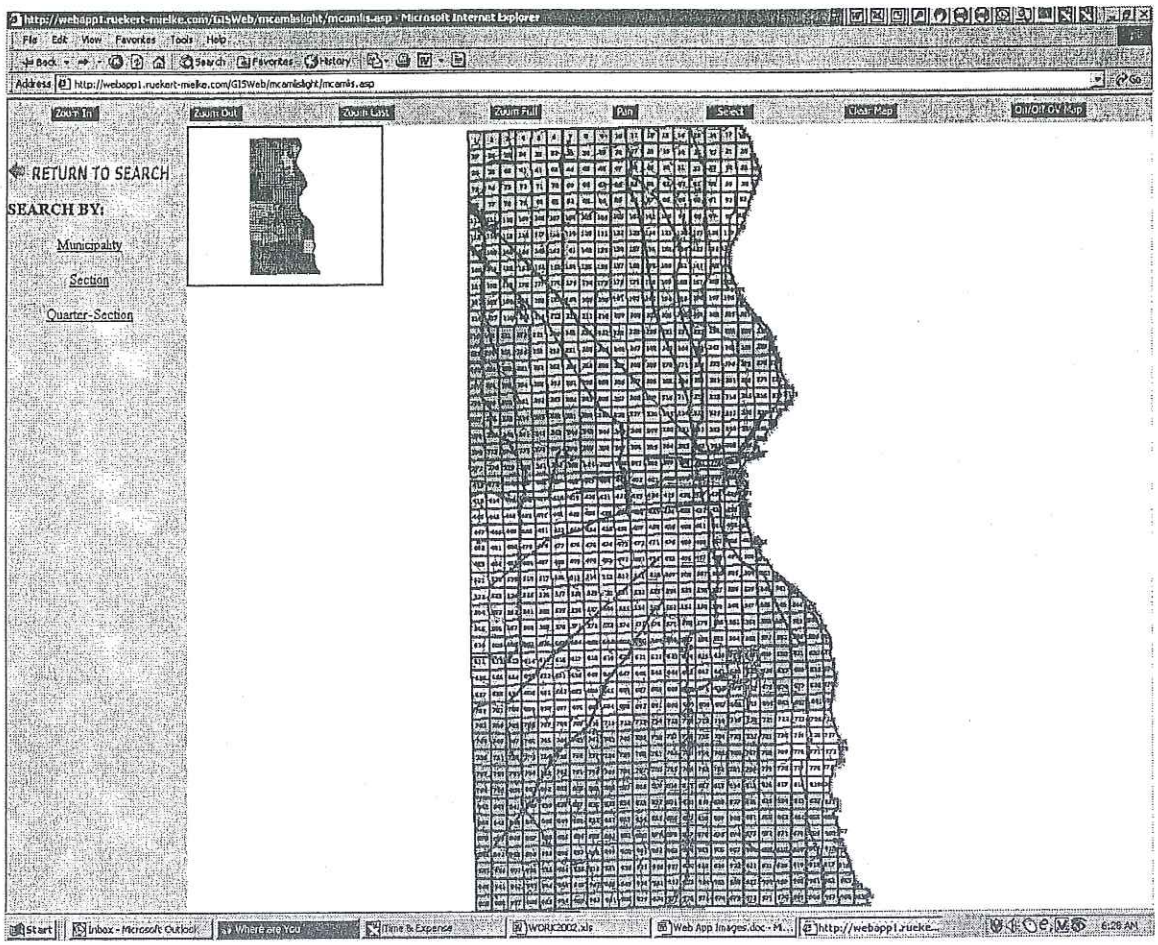
Option 1: ArcMap (Converted Data) – Zoom-in and Display Cadastral & West Allis Utility Data



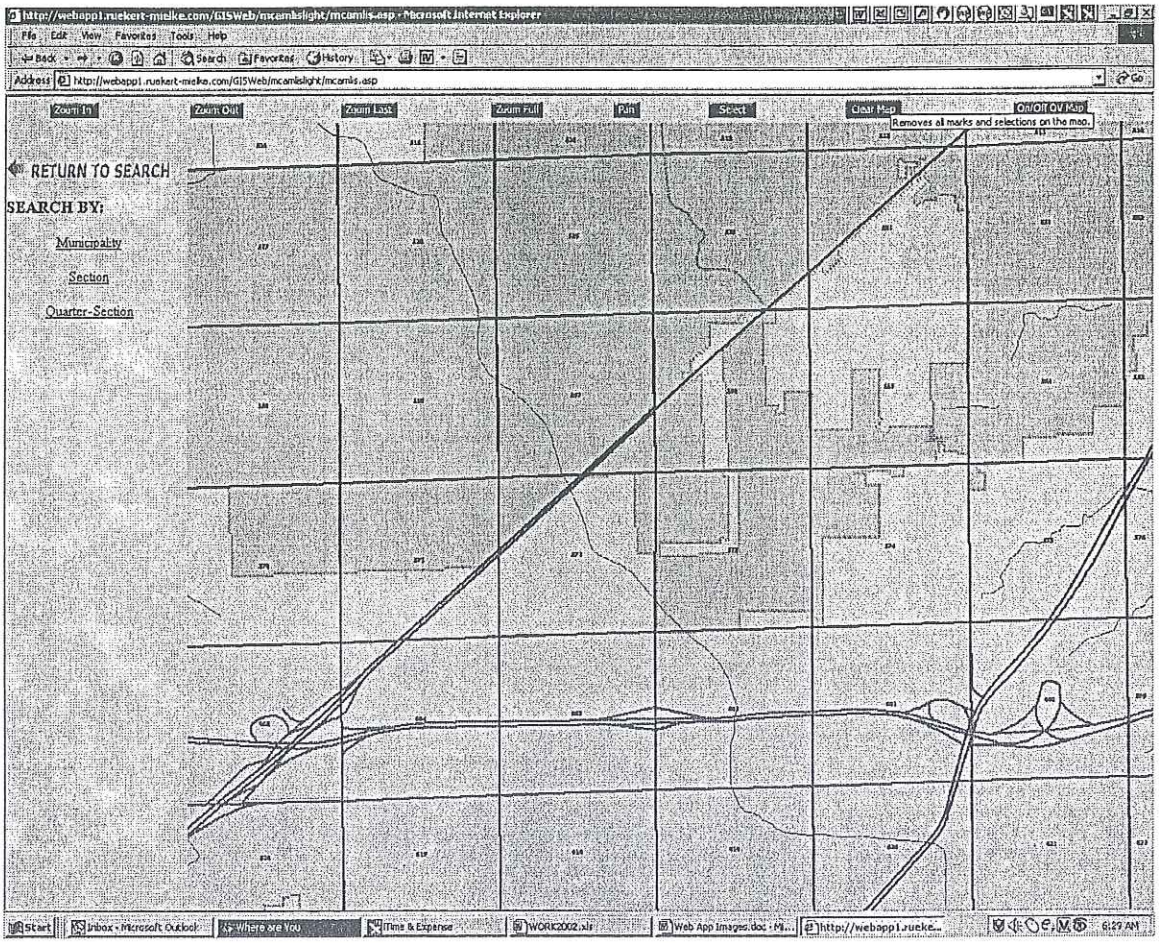
Option 2: ArcIMS (Database Extract) – Search by Municipality, Section, or One-quarter Section



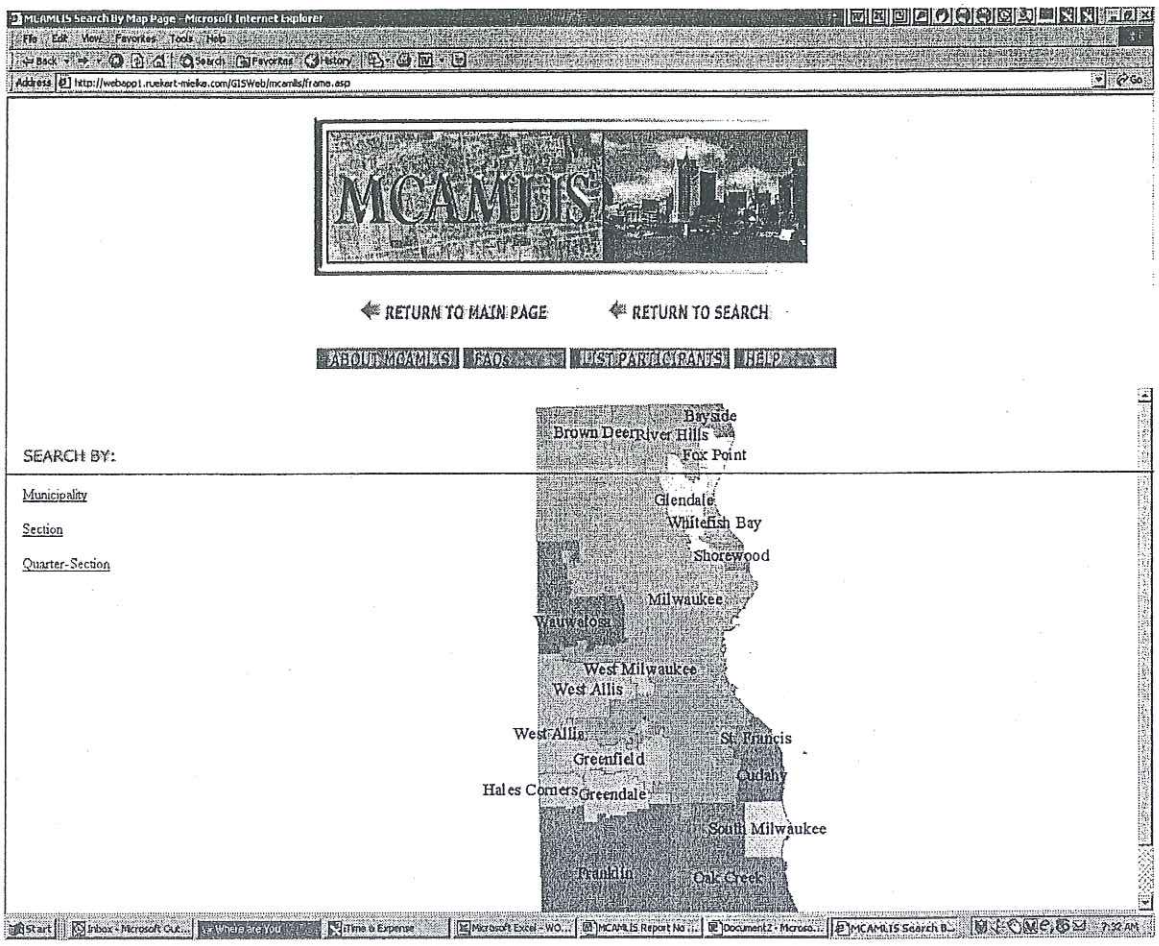
Option 2: ArcIMS (Database Extract) – Search by: Section - Display U.S.P.L.S.S. Section Lines



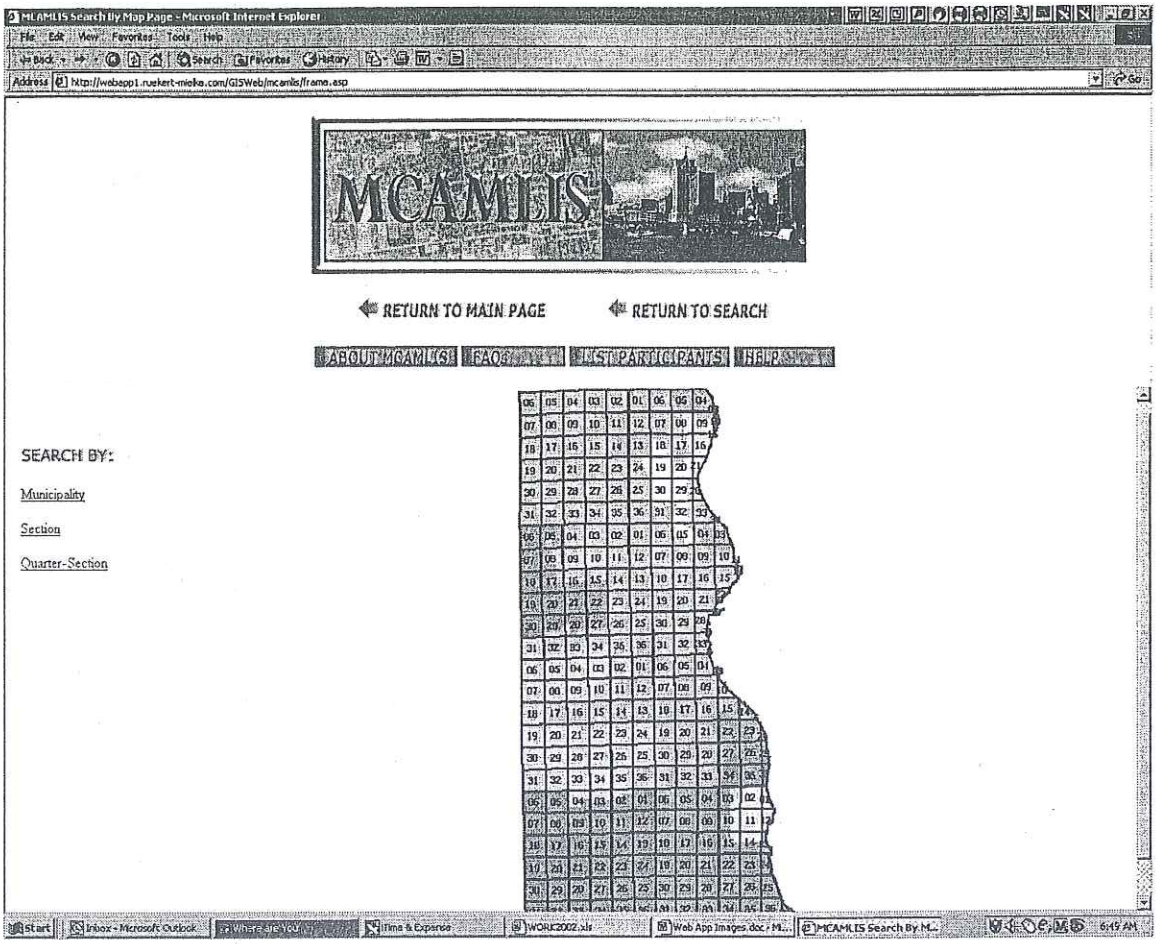
Option 2: ArcIMS (Database Extract) – Search by: One-section - Display U.S.P.L.S.S. One-Quarter Section Lines



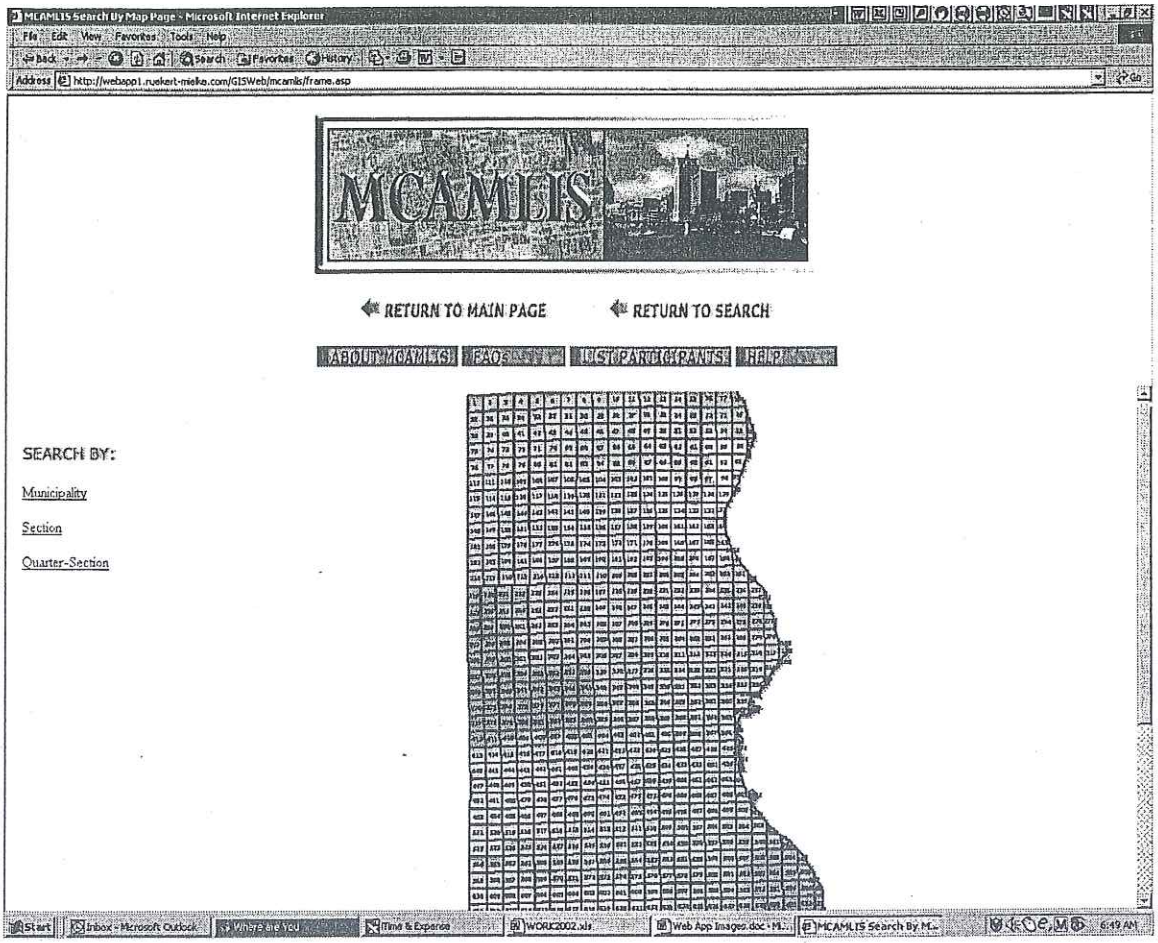
Option 2: ArcIMS (Database Extract) – Zoom-in to identify desired area



Option 3: Image (HTML Document) – Search by: Municipality, Section, or One-quarter Section



Option 3: Image (HTML Document) – Search by: Section



Option 3: Image (HTML Document) – Search by: One-quarter Section

IDENTIFY/RESOLVE PROTOTYPE ISSUES – SET STANDARDS

Data Integration

As noted previously, one of the challenges for the prototype will be the merging of data from different organizations that are using different software and have mapped their facilities to a different land base.

Ruekert/Mielke loaded all of the available digital files into an ESRI ArcMap document. Since the Technical Advisory Committee members were more interested in point and vector data (utility -features and main segments) than attribute data, the conversion of the available digital files was fairly straightforward. Initial concerns about intelligent ties between land information and facility features, such as the address or parcel identification linked to the corresponding service valve, were no longer relevant. ArcMap can import most of the file formats provided by the participants, thereby eliminating any need for conversion. The latest release of ArcIMS, version 4.0, is capable of reading directly from ArcMap documents, thereby eliminating any need to convert text features as previously required with version 3.1. Since We Energies' gas operations converted their SmallWorld files (which cannot be imported into ArcMap) into ArcInfo Interchange files, all of the participants' data were loaded and made accessible.

The digital one-quarter section cadastral and topographic files provided the greatest challenge. Due to the quantity (approximately 1,000) and size (range) of these files, the load time was extremely slow (2 minutes). The preparation of seamless, or larger tiled areas, will decrease the load time.

The varying naming conventions for feature definitions, such as the layer name or level number of the sanitary sewer mains, increased the quantity of viewable layers. All members of the Technical Advisory Committee indicated that the creation of a common specification for municipal utility features would be cumbersome and impractical. Most participants indicated they were willing and able to receive and deal with the specification issues internally. Since most of the Technical Advisory Committee has personnel that have successfully dealt with conversion issues, their recommendation may not coincide with other municipalities that do not employ technically skilled personnel.

Data Tiling

Most of the data provided for the prototype was tiled into U.S.P.L.S.S. one-quarter section survey files. Exceptions included the City of Milwaukee, Village of Brown Deer's public utility maps, and the We Energies gas data. The City of Milwaukee's water and sanitary sewer system datasets were tiled into much smaller geographic areas than one-quarter section survey files. If these data sets are not converted or recompiled into larger geographically tiled areas, the performance and display of this information in the web-based application will be significantly slower, especially for end users not having high speed internet connections.

The Village of Brown Deer's sanitary sewer, storm sewer, and water distribution facilities currently reside as individual Village-wide files, covering the entire village incorporated area. Therefore, this information cannot be easily displayed in smaller geographic areas. The We Energies' gas and electric data are stored in a much larger regional tile. The gas data is in one contiguous data set, which can be extracted into one-quarter section, municipality, or county-wide file sizes. The electric data is stored in smaller map-based tiles. Both gas and electric data can be extracted into U.S.P.L.S.S. one-quarter section, section, municipality, countywide or whatever file size that is determined to optimize the land-sharing scheme.

Recommendation

- Since most of the municipalities either currently maintain, or would like to obtain, community-wide tiled base maps for engineering, planning, and other mapping purposes, we recommend that MCAMLIS, at a minimum, recompile the digital one-quarter section cadastral maps into larger tiled areas. From a maintenance standpoint, the larger the tiled area the better. With current technology and computer processor speeds exceeding 2 gigahertz (GHz), the digital cadastral maps could be re-compiled into a County-wide coverage and exported into municipal sized files. However, since the City of Milwaukee and other MicroStation users are not currently using MicroStation V8, which supports file sizes over 32 megabytes (MB), County-wide file sizes may be too large. Additionally, since municipal boundaries do not follow other coincident geographic boundaries, such as one-quarter section or section lines, anything smaller than a County-wide coverage would require each municipality to re-compile multiple tiled area maps. Hence, MCAMLIS, or a web hosting consultant, may need to re-compile individual municipal-wide digital maps before posting on the web server. Each municipal file would require a minimal amount of data from the adjacent municipality. Preparing these files from County-wide coverages would require minimal effort - approximately 4-6 hours. On the other hand, a custom utility could be developed that would automate and simplify this process, effectively reducing the time spent to less than an hour. The cost to prepare an automated tool is estimated to be $3,000 - $5,000. Assuming Milwaukee County updates and posts the digital cadastral map files on a monthly basis, the cost of the automation tool would pay for itself within the first year.

The following is a scope of services, cost estimates, and deliverables to prepare larger tiled digital cadastral and topographic maps:

SCOPE OF SERVICES

Cadastral Maps

1. Remove redundant and duplicate text and line features.

2. Reposition text labels, wherever possible, to make them more legible and recognizable.

3. Recreate parcel polygons.

Topographic Maps

1. Remove redundant and duplicate text and planimetric line features.

2. Reposition text labels, wherever possible, to make them more legible and recognizable.

3. Reconnect planimetric features such as building outlines, walls, pavement edges, walks, etc.

4. Dissolve overlapping contour lines.

5. Create building polygons.

The majority of the cleanup effort for both types of digital maps is along the one-quarter section lines.

Deliverables

1. A single County-wide digital map file for each of the individual map layers or coverages.

2. A single County-wide digital map file for each of the individual map layers or coverages.

Due to the size and amount of information contained in digital topographic map files, we would recommend that the digital topographic map files be prepared in government township (or other smaller geographic area) files. Cost estimate for this effort would not be affected by the geographic area of the deliverable product.

Cadastral Map Cost Estimate: $40,000 - $45,000

Topographic Map Cost Estimate: $35,000 - $40,000

Coincidence & Redundancy

Several of the pilot project data sets, provided by the participants, exhibited some level of coincidence or redundancy in their respective datasets. Similar layers, such as street right-of-way lines, street names and parcel lines, were defined and named differently within the various files. Importing these files, without initially removing the redundant data layers, will seriously impede the performance of any GIS or related web-based application. Additionally, it is obvious that each of these entities is maintaining similar land base information that could be reduced or eliminated if MCAMLIS could provide these services in a more timely manner.

One of the data redundancy issues addressed in Report No. 2, has been the independent evolution of the MCAMLIS and private utility land base maps. The most noticeable anomaly resulting from this replication, is the compilation of data using different standards for layer specifications, geodetic control, and accuracy. After completing the coordinate transformation referenced

below, the data submitted by We Energies displayed minor deviations from the MCAMLIS cadastral information as expected. However, in the opinion of the Technical Advisory Committee, this deviation was well within acceptable limits based on their uniform desire to only approximately locate the private utility facilities for general usage.

There is redundancy in the content and display of public utility related data, particularly with regards to sewer mains under the jurisdiction of MMSD. Data sets provided by the Village of Brown Deer, City of West Allis, and the City of Milwaukee all contained MMSD Metropolitan Interceptor System (MIS) manholes and pipe segments immediately adjacent to, or connected with, their respective utility sewer facilities. It is unclear if all of the local communities maintain these MMSD features. If so, this would be another data set involving redundant maintenance efforts. Assuming the MCAMLIS Land Information and Utility data sharing and web application are implemented, the duplication of data and maintenance efforts could be eliminated.

Numerous Digital File Specifications
(i.e. layers, levels, object types, symbols and text fonts).

The City of West Allis utility dataset takes advantage of a custom font instead of using point features for their utility structures (i.e. a hydrant is denoted as the letter H, valves by the letter V). Because this has been developed as a custom font native to the MicroStation software environment it will not be able to be displayed properly in other GIS software programs. Since the Technical Advisory Committee has determined that associated attribute data will not be included due to potential compromises in security, this will not be a major concern. Possible solutions include recreating the font so that it can be used in the web environment, conversion of the text features to appropriate point features, or eliminating the text from the available data set. Similarly, digital files provided by the MMSD, has revealed that this may also be the case for their four CAD datasets.

The Technical Advisory Committee, consisting of experienced land and utility information experts, felt that the conversion of available digital map products should be the responsibility of the individual user. Although this makes sense for experienced GIS personnel, it may be a problem for other local units of government, which may not have technical staff, or if they do, they may have limited conversion experience. The feedback provided by other municipalities (see Survey Results), validates our concern.

Recommendation

Therefore, we believe this issue should be reevaluated and discussed within the next two years as more municipalities utilize the available digital products and develop as sense of how MCAMLIS could improve the usefulness of the digital information.

Map Projection

The MCAMLIS standard for map projection is Wisconsin State Plane, South Zone, North American Datum of 1927. Because the MCAMLIS cadastral maps are often the base maps other municipal datasets are built on, this lends itself well to most of the data involved in this study. However, because of the variable land base systems in place with the private utility companies,

there are some data transformation issues to be dealt with. For the purposes of this study the We Energies gas and electric datasets were required to be converted from Wisconsin State Plane, Central Zone, NAD 1983 and UTM, Zone 16, NAD 1927 to the MCAMLIS standard respectively. Since We Energies services a much larger region outside of Milwaukee County that encompasses much of the State of Wisconsin and the Upper Peninsula of Michigan, it is not practical for them to use a map projection centered on Southern Wisconsin. If the We Energies datasets were to be provided for Internet distribution in a known and documented projection, most of the participants would be able to re-project the data for their own use. However, some of the smaller local municipalities that lack the technical staff or knowledge, or utilize CAD, rather than GIS software, may not be able to perform the re-projection. Hence, in order to ensure the widest possible use among potential participants, we recommend that the We Energies data be re-projected before being made available for distribution in an Internet web-based application. The re-projection could be performed by We Energies or MCAMLIS staff. In the event MCAMLIS determines that the web application and data should be hosted by a third party service provider, the selected service provider could also re-project the necessary data.

MCAMLIS License Agreement

The existing MCAMLIS licensing agreement restricts use and distribution of available digital map data and does not have provisions for continuous distribution of updated digital map products without an additional cost, nor does it allow for the redistribution of the digital map products. Since the digital cadastral maps are being updated on a regular basis, each delivery of the digital files may be obsolete the moment they are distributed. Additionally, the digital cadastral and topographic maps are used extensively within municipal engineering and planning departments and are often shared and distributed to outside consultants. The digital files can save a tremendous amount of time and effort, and have a significant value for engineering and planning related projects to all communities in Milwaukee County. Numerous other County Land Information Offices throughout Wisconsin, including Waukesha, Racine, Kenosha, and Ozaukee counties, share their digital land bases with local units of government at little or no cost. It does not seem practical, nor financially feasible, for local units of government to make regular requests, sign license agreements, or pay additional fees for the monthly updates.

The Wisconsin Land Information Program (WLIP), built on an idea of data integration and cooperation, between and within multiple levels of government, has provided some of the funding for products included in the Internet prototype web application. Furthermore, the salary for the GIS position, and the associated cost for digital cadastral map maintenance are being paid from retained fees collected in the Milwaukee County Land Information Office and generated from an increase in the document recording fees as part of legislation enacted in 1990 to help fund Land Records Modernization. Any type of cost recovery for the MCAMLIS products from local units of government would seem to defy the mission of the WLIP.

Recommendation

Thus, the Technical Advisory Committee recommends that the MCAMLIS license agreement is eliminated from future use and does not become a part of the Internet Land and Utility Web Application.

Metadata

Since the Wisconsin Land Information Association has approved and recommended the use of the FGDC (Federal Geographic Data Committee) standard for digital information throughout Wisconsin, we recommend that metadata be compiled, maintained, updated, and posted on the web application. However, the FGDC format is very difficult to read and understand. Therefore, we also recommend that a simplified version be compiled and posted. The following is a sample of cadastral metadata as posted on the Waukesha County GIS Map Server:

1. Description	Tax ownership polygons and legal information.
2. Data Source	Waukesha County
3. Date of Mapping	1992 to present
4. Mapping Scale	1:1200 (1"=100') Menomonee Falls, New Berlin, Muskego and City of Oconomowoc. All other areas 1:2400 (1"=200').
5. Mapping Sources	Subdivision plats, CSM, Condominium and deed documents and County tax rolls. Structure outlines, where they exist, were compiled from existing, analog topographic maps at the scale of the cadastral mapping for that area.
6. Map Accuracy	+/- 3.3 feet in Menomonee Falls, New Berlin, Muskego and City of Oconomowoc. All other areas +/- 6.6 feet.
7. Map Currency	Maps current to 3/31/2002. Structures mapped date anywhere from 1967 to 1999.
8. Parcel Data Currency	Tax Parcel Data Current to 3/31/2002.
9. Coverage	Waukesha County

OTHER ISSUES

The following is a list of other data sharing issues identified in Report No. 2 and recommendations based on participant feedback and the development of the prototype web application:

Maintenance Schedule

Until recently, there wasn't a coordinated maintenance schedule for cadastral updates.

Recommendation

- Milwaukee County has reported that the digital cadastral maps for the entire county will be updated by the end of 2002. Therefore, Milwaukee County should continue to maintain the digital cadastral files for all other municipalities and distribute the updated files to these municipalities on a mutually agreed upon schedule. Some municipalities, who desire more frequent updates, may continue to maintain their set of digital cadastral maps as indicated in the survey responses. Although their reasons may be valid, the duplicate and redundant maintenance efforts increase the cost to the local taxpayers. Milwaukee County should continue to evaluate ways to satisfy the needs of those communities by increasing the frequency and distribution of the digital cadastral map updates.

Distribution System

There continues to be a limited awareness of the distribution system or published process to acquire updates.

~~Throughout the duration of this study~~. In order to increase the awareness of the MCAMLIS efforts and associated map products, Ruekert/Mielke conducted separate demonstrations of related GIS web applications for numerous communities with Milwaukee County throughout the course of this study. The following is a list of communities and individuals that attended the demonstrations:

NAME/ORGANIZATION	TITLE	GIS INTRODUCTION	GIS DEMONSTRATION
AMERITECH			
Paulette S. Conerton	Design Office Manager	X	X
Dextra Hadnot	Director - External Affairs	X	
Ricky B. Wicklund	Telecommunications Specialist	X	X
CITY OF CUDAHY			
Craig Faucett, P.E.	Director of Engineering	X	X
Steve Miner	Assessors Office	X	X
DIGGERS HOTLINE			
Ben Zweifel	Executive Director	X	X
CITY OF GLENDALE			
Todd M. Stuebe, P.E., AICP	Director of Community Development	X	
VILLAGE OF HALES CORNERS			
Michael Martin, RLS,PE	Director of Public Works	X	X
MILWAUKEE COUNTY			
Kathleen A. Bach	Geographic Information Technician	X	X
Walter R. Barczak	Register of Deeds	X	X
Kevin Bruhn	Infrastructure Coordinator	X	X
Gary E. Drent	Fiscal & Budget Manager (A&E)	X	X
Gregory G. High, P.E.	Director, Department of Public Works	X	X
Paul Mika	Register of Deeds Office	X	X
Ignatias Niemczyk	Register of Deeds	X	X
Kevin White	GIS Supervisor, Public Works Department	X	X
CITY OF OAK CREEK			
Leslie A. Flynn	GIS Technician	X	X
Michael J. Sullivan, P.E.	Design Engineer	X	

NAME/ORGANIZATION	TITLE	GIS INTRODUCTION	GIS DEMONSTRATION
CITY OF ST. FRANCIS			
Jack Schultz, P.E.	City Engineer, Director of Public Works	X	
CITY OF SOUTH MILWAUKEE			
Jack Zader	Director of Planning and Inspections	X	X
CITY OF WAUWATOSA			
Christopher Bennett	Engineering Technician	X	X
William A. Kappel	Director of Public Works	X	X
CITY OF WEST ALLIS			
Patrick Walker	Geographic Information Systems Coordinator	X	X
VILLAGE OF WHITEFISH BAY			
Mary Jo Lange, PE	Director of Public Works/Engineer	X	

Recommendation

The MCAMLIS Steering Committee should officially announce, through the ICC representatives, the maintenance schedule and distribution process to all local units of government, with special attention to the appropriate GIS or technical staff. Since many of the local communities utilize CAD software for engineering and planning projects, and exhibit preparation, the announcement should also be directed to the Engineering and Planning departments, and to local engineering and planning consultants providing services to these municipalities. An article in each local newspaper, as well as the Milwaukee Journal Sentinel, may prove to be very beneficial.

Numerous File Formats and GIS Software Platforms

The recommended Internet Prototype Web Application provides the means for users to download available digital files in their native format. The end user will be responsible for conversion, including map projection, symbology, text fonts, etc. Although GIS software vendors have progressively worked towards standardizing data storage and feature definitions, the effort can still be extensive, depending on the source and desired file formats. The Open GIS Consortium, Inc (OGC), an international industry consortium of more than 220 companies, government agencies and universities, is participating in a consensus process to develop publicly available geoprocessing specifications. Open interfaces and protocols defined by OpenGIS® Specifications support interoperable solutions that "geo-enable" the Web, wireless and location-based services, and mainstream IT, and empower technology developers to make complex spatial information and services accessible and useful with all kinds of applications. This consortium, and the participating software vendors, are working on ways to ultimately resolve the data exchange issues.

Based on current investments in their existing data conversion efforts, and the amount of time and expense it would potentially take to convert to a new format, the Technical Advisory

Committee did not think it was practical or fiscally responsible at this time, to develop a standard file format. Existing GIS software generally stores geographic data (points, lines, and polygons) in a proprietary format, and attributes in either proprietary tables or in external databases. Technological advances in data storage, the latest being geodatabases, store geographic and attribute data in a single database, such Oracle, Microsoft Access, or Microsoft SQL Server. As each of the participants begin evaluating their plans to convert to this technology, the opportunity to discuss and develop a standard file format will arise.

Recommendation

A local user group, consisting of all interested municipalities and public utility companies, should be formed. The existing Technical Advisory Committee members could facilitate the group and continue the discussion and evaluation of a standard file format. Working together, understanding each other's goals and objectives, and recognizing the vast opportunities data sharing can provide in productivity gains and cost savings, the group will be able to develop a set of standards that all participants can live with. This is no small task and will require a significant amount of cooperation, appreciation, and upper level management from all participants.

Incomplete Data Sets

The City of Milwaukee is still uncertain of their willingness to provide, and have distributed, digital water distribution facilities over the Internet. We Energies, until recently, also reserved their right to determine the viability and practicality of providing their digital files for the MCAMLIS Land and Utility Information System Internet Prototype. At the same time this report and Internet Prototype were being developed, We Energies began implementing an agreement that includes facility locations and a limited number of attributes. ~~On~~ The following ~~page~~ is an excerpt from their agreement.

We Energies Test Data for Kenosha County
This data is owned by We Energies, C. 2002
This data is for test purposes only and is not to be re-distributed
We Energies Electric GIS projection info:
UTM (Universal Transverse Mercator) Zone 16
Spheriod is "Clark 1866"
Units = Decimeters

Data set includes 3 ESRI Shapefiles

1. KE_Poles is a point coverage of We Energies pole locations in test area
   The data field "Id_Number" is the pole tag physically attached to the pole.
2. KE_3ph is a line coverage for primary electric conductor
3. KE_12ph is a line coverage for primary electric conductor
   Both of the line coverages include a data field "Installtyp" which describes the type of conductor:

OH = Overhead conductor
DB = Buried conductor
CM = Conduit Manhole conductor
Please contact Tim Marquardt at We Energies with questions 414-221-4783

Although this is more information than provided for in the Internet Prototype, We Energies would still like to limit or restrict access to their data by having the person or organization requesting the data contact their office directly. We Energies staff would be responsible for executing agreement, compiling data, and distributing on the appropriate media. This decision dramatically affects the anticipated content and benefits of the MCAMLIS Land and Utility Information System Internet Prototype.

Transactional Updates

Some participants would like to receive incremental updates while others would replace their entire digital land base map with the updated MCAMLIS files.

Currently, Milwaukee County intends to update and post the digital cadastral files every 60-90 days. Some participants have indicated they would only want updated files every 6 months. The Internet Prototype Web Application was designed to include multiple data sets for each feature. Each set of updated digital cadastral files will be logged in the data server and made available to the end user. The results of their data search will list each of the available data sets posted by the data provider. Periodically, the available data sets could be reduced to include only those files posted over the last 1-2 years. The Technical Advisory Committee determined that the digital cadastral files were the only data set that should be posted in a manner that will allow the end user to see the incremental changes from the previous set of posted files. The GIS software industry has been developing database designs and software solutions that will track historical changes, in particular the cadastral land base, which will solve this issue. Since Milwaukee County is still in the process of updating the digital cadastral files and plans to continue maintaining these files for the majority of the Milwaukee County municipalities, now is the time for MCAMLIS to incorporate specifications and procedures that will support the creation of the incremental data sets.

The following information includes conceptual designs for the development and use of geodatabases for the digital cadastral maps and transactional processing for incremental updates. ESRI has announced that ArcMap, currently being used by Milwaukee County staff for storage and maintenance of the digital cadastral and topographic maps, will no longer support coverage editing with the release of ArcGIS 8.3. Therefore, the transaction to geodatabases, which are fully supported in ArcGIS 8.3, is inevitable.

We have investigated the opportunity to link transactional data with the existing MCAMLIS data. We concluded, based on the results of our research efforts, that there are three (3) potential options that could be incorporated into the maintenance process to prepare the necessary transactional data. The three options are presented in Table 1.

There are advantages and disadvantages to each of the three options. Option 1 is a simple approach - when a parcel, CSM, subdivision, or condominium is created, modified, or removed, it would be added to a list of cadastral updates that are stored in a separate database table. The feature identifier (tax key number, CSM number, subdivision name, or condominium name) would be added to the transaction table. This option would not require any changes to the existing cadastral data structure, and would result in only a small amount of additional effort for the County during data maintenance. However, the original geometry of removed or modified

features would not be preserved, and a moderate effort would be required to create a map showing the cadastral updates. The County would provide the municipalities with the updated GIS data and the separate database of cadastral transactions.

If Option 1 is selected, updated parcel polygons could be programmatically identified using the tax key numbers from the list of updates. However, there would be no way to systematically identify the updated CSM's, subdivisions, and condominiums using the current cadastral data model because none of the features contain the CSM number, subdivision name, or condominium name as an attribute.

Option 2 differs from Option 1 in that the GIS features would be added to a separate transactions data layer, instead of only a feature identifier being added to a tabular database. When a parcel, CSM, subdivision, or condominium is created, modified, or removed, the polygon or line, and the associated text would be added to transaction layer. As with Option 1, no changes would be needed to the existing cadastral data structure and there would be a minimal increase in the County's maintenance effort.

Option 2 has the additional benefit of making it possible to create a map of cadastral updates with minimal effort. Since the actual GIS features are preserved, it would be possible to identify the updated CSM's, subdivisions, and condominiums, as well as the parcels. During each maintenance period, a new transaction layer would be created for each of the four cadastral features being included in the transactions - parcels, CSM's, subdivisions, and condominiums. The County would provide the municipalities with the updated GIS data and the set of transaction layers.

With Option 3, the original cadastral feature is always maintained within the data, and a status code is used to differentiate between current and historical features. For example, if a parcel is split into two new parcels, the original parcel's status code is changed to "Historical", and the two new parcels are created and given a "Current" status code. The historical features can be hidden from any display or hardcopy map by only displaying features that have a status code of "Current."

Option 3 provides the added benefit of being able to query both current and historical parcels within a single data layer. It also makes it possible to create a "snapshot" of the cadastral data for any date since the transactions started being recorded. Implementing Option 3 would require modification of the cadastral data model in order to support overlapping polygons. This could be accomplished with a geodatabase, or with region features within an ArcInfo coverage. Additionally, the status, transaction date, and transaction description attributes would need to be added to the parcel, CSM, subdivision, and condominium features.

Regardless of the method selected, the recorded transaction information should include a way to identify the feature, the date of the transaction, and a description of the type of transaction (e.g. parcel split, new CSM). Alternatives and our recommendation are discussed in the following section.

TABLE 1: OPTIONS FOR TRANSACTIONAL UPDATES

Option	Method	Maintenance Efforts (County)	Preserves Geometry	Able to Create "Snapshot" Map	Maintenance Efforts (Municipalities)	Changes to MCAMLIS Database Design
1. **Separate Transaction Database** - Simple Solution - Minimal functionality	• Cadastral features are added, deleted, or modified in the GIS data • For each transaction, the tax key, CSM, Subdivision or Condo name is added to a database file • Date and description of transaction also recorded • Provide municipalities updated GIS data and transaction database.	Minimal	No	No	Significant	No changes to existing database design. Create new, separate DBMS file e.g. MS Access
2. **Separate Transaction Layers** -Moderate complexity -Moderate functionality	• New and modified features are copied to a separate transaction layer. • Associated text is also copied to transaction layer • Provide municipalities with updated GIS data and a set of data layers for each maintenance period	Minimal	Yes	Limited	Moderate	No changes to existing database design Create new transaction layers "
3. **Integrated Transaction Features** -Complex data model -Potential for more applications	• Features are not deleted from cadastral GIS layers • Updated features are saved in existing data layer and given a status code – Active, Historical, Proposed Date Field used to create snapshot in time of cadastral map • Comments describe reason for update (new CSM, parcel split, etc.) • Provide municipalities with updated GIS data that includes features and text involved in transactions	Moderate	Yes	Yes	Moderate	Use ArcInfo coverage* regions or a geodatabase to support overlapping polygons. Add status, date, description attributes to features

*ESRI has announced that ArcMap will no longer support coverage editing with the release of ArcGIS 8.3. ArcEdit, which is a module within ArcInfo Workstation, is the only application that will continue to support coverage editing.

Conceptual Database Designs

In order to support transactional updates, we have also prepared conceptual database designs for each of the options described above. The three options and their associated conceptual database designs are shown in Table 2.

Table 2: Conceptual Database Designs For Transaction Options		
OPTION	**CONCEPTUAL DATABASE DESIGNS**	
1. Separate Transaction Database	**Design 1A: Separate Database Tables**	
	Parcel transaction table	
	Subdivision transaction table	
	CSM transaction table	
	Condominium transaction Table	
2. Separate Transaction Layers	**Design 2A: Geometry Layers**	
	Transaction Line Layer	
	Transaction Text Layer	
	Transaction Polygon Layer	
	Design 2B: Feature/Geometry Layers	
	Cadastral Feature	Transaction Layers
	Parcel	Parcel Line, Polygon, and Text
	Subdivision	Subdivision Line and Text
	CSM	CSM Line and Text
	Condominium	Condominium Line and Text
	Design 2C: Match MCAMLIS Layers	
3. Integrated Transaction Features	**Design 3A: Add Attributes to GIS Data Layers** **Design 3B:** Store transaction attributes in separate table GIS data, which joins to transaction table using a transaction ID	

A cadastral transaction involving a parcel, subdivision, CSM, or condominium could impact several different data layers. For each of these four cadastral features, Table 3 shows which type of GIS layers from the current MCAMLIS database design could be affected by a cadastral transaction.

TABLE 3: GIS Layers Affected by Cadastral Transactions	
Cadastral Feature	**Affected Layers**
Parcel	Parcel Line, Parcel Area, Parcel Dimension, Parcel ID Number, Tie Mark Line, Text Related Line, Note Text
Subdivision	Subdivision Line, Subdivision Text, Text Related Line, Note Text
CSM	CSM Line, CSM Text, Text Related Line, Note Text
Condominium	Condominium Line, Condominium Text, Text Related Line, Note Text

Regardless of the method used for preserving cadastral transactions, there are several pieces of information, or attributes, that should be recorded. These attributes are listed in Table 4.

TABLE 4: Attributes of Cadastral Transactions
Feature identifier (tax key number, CSM number, subdivision name, or condominium name)
Transaction date
Transaction description
Name/initials of person who performed the transaction edits
PLSS location (section and quarter-section, or quarter-section map number)

Option 1

If Option 1 were selected as the method for preserving cadastral transactions, information about the transactions would be added to set of database tables, then the features would be removed from the GIS data. A separate table would be created for each type of cadastral feature, so there would be a parcel table, a subdivision table, a CSM table, and a condominium table. Each table would store the attributes listed in Table 4.

Option 2

With Option 1, none of the GIS features from the layers affected by cadastral transactions (as shown in Table 2) would be saved. If Option 2 were chosen, the affected GIS features would be stored in separate transaction layers. The transaction layers would include the same information as in the database table with Option 1, but would also preserve the GIS data of the affected features.

The transaction layers could be designed three different ways:

Design 2A. One transaction layer for each type of geometry (line, polygon, text)

Design 2B. One set of transaction layers for each of the four cadastral features: parcel, subdivision, CSM, and condominium. A set of layers would consist of a line layer and a text layer. Parcels would also have a polygon layer.

Design 2C. Create a matching transaction layer for each layer in the current MCAMLIS database design.

Design 2A

The transaction features would be stored in one layer for each type of geometry. This would result in the following three transaction layers:

Transaction Line layer
Transaction Text layer
Transaction Polygon layer

The Transaction Line layer would contain all line features involved in transactions. The Transaction Polygon layer would contain all affected polygons, and the Transaction Text layer would contain all affected text. A new set of these three transaction layers would be created during each maintenance period. The original attributes of each line, polygon, and text element would be saved, so the individual feature types could be identified. For example, the parcel lines could be distinguished from the subdivision lines, and the condominium text could be distinguished from the CSM text. This is a simple design that would minimize the effort required to preserve transaction information during data maintenance. However, this design does not follow the current MCAMLIS specifications, which may make it difficult to use with the existing cadastral data.

Design 2B

Create a separate data layer for each type of cadastral feature. This would require the nine separate layers listed in Table 5. For example, all line features involved in a "combine parcels" transaction would be stored in the Parcel Line transaction layer. This would include parcel lines, tie lines, tie mark lines, and text related lines. The Parcel Text transaction layer would include parcel dimension text, parcel ID number text, and any note text associated with the affected parcels.

TABLE 5: Transaction Layers for Each Cadastral Feature

Cadastral Feature	Transaction Layers
Parcel	Parcel Line, Parcel Polygon, Parcel Text
Subdivision	Subdivision Line, Subdivision Text
CSM	CSM Line, CSM Text
Condominium	Condominium Line, Condominium Text

Creating a greater number of separate transaction layers could increase the work effort required to record transaction information during data maintenance. Design B has a somewhat higher degree of complexity than Design A, since there are more data files that need to be edited and managed. This design is closer to the existing cadastral specifications than Design 2A. However, the remaining deviations from existing design may still cause problems for users of the data.

Design 2C

The third design option would create a matching transaction layer for each layer in the current MCAMLIS database design. This would require approximately fourteen different transaction layers. The larger number of transaction layers could make it more difficult to view, edit, and manage the transaction information. However, the advantage of this design is that the transaction data follows the same specification as the cadastral data, which may be very helpful to people who are familiar with the cadastral data.

Option 3

The biggest difference between the first two options and Option 3 is that Option 3 does not remove the modified or replaced features from the GIS data. Instead, historical information is stored within the existing layers. A "status" attribute is added to each layer to define features as either "current" or "historical". For example, if a parcel is replaced by a subdivision, the original parcel is not deleted, but its status is changed from current to historical. The new subdivision and its associated parcels would have a "current" status.

Design 3A

In addition to the status attribute, each of the attributes listed above in Table 4 would be added to each of the layers listed in Table 3. The transaction attributes could be used to display only the current cadastral data, or only the transactions that have been recorded since a certain date. A status of "proposed" could also be used to identify cadastral features, such as subdivisions and condominiums that have been planned but not yet created.

In order to implement Option 3, the cadastral database design needs to be modified to support overlapping polygons. This can be accomplished by using region features within ArcInfo coverages, or by using a geodatabase. Using a geodatabase is the recommended approach, for several reasons:

- The GIS industry as a whole is moving toward geodatabase technology, and away from proprietary data formats such as coverages
- ESRI's software development strategy is focused on geodatabases
- ArcInfo coverages can no longer be edited with ArcMap - ArcInfo workstation is required

The recommended geodatabase design for implementing Option 3 would replicate the current MCAMLIS database structure as much as possible. It would have essentially the same data layers, the same attributes (e.g. TAG), and would support creation of the same types of hardcopy map products. The only changes would be:

- Conversion to geodatabase format
- Addition of status attribute and the attributes listed in Table 4 to the layers associated with parcels, subdivisions, CSM's, and condominiums.

Design 3B

An alternative to adding all of the transaction attributes directly to the cadastral features is to store the transaction attributes in a separate, related table. Each cadastral feature would still receive a status code of current or historical, and they would also be assigned a unique transaction ID number. In a separate database table, a corresponding record for each transaction ID would store the transaction information for that cadastral feature.

Recommendation

Based on the combined needs and resources of the MCAMLIS participants, Ruekert/Mielke recommends Option 2 and database design 2C as a solution for maintaining a record of cadastral transactions. Option 1 does not make it possible to easily view the updated features, which is important for both the County and the municipalities. Option 3 requires substantial changes to the current MCAMLIS cadastral data model and would only provide a marginal increase in benefits. Option 2 provides the ability to view the features affected by maintenance and does not require any changes to the current cadastral data model. Design 2C, which corresponds to the existing cadastral specifications, will minimize the complexity of preserving and using transactional records. Our recommendation is also based on the preparation of larger tiled digital cadastral maps as discussed in the "Data Tiling" section of this report. The cost to implement the recommended procedures and database design is estimated between $6,000-$8,000.

The cost to convert the existing digital cadastral maps to the recommended specifications is estimated between $20,000-$30,000. Unfortunately, due to existing digital cadastral map specifications, the original exterior boundaries of subdivision and condominium plats, and certified survey maps are not maintained if subsequent development created new, or combined parcels. The conversion cost does not include re-establishing the original exterior boundaries. Should MCAMLIS decide to proceed with the recommended development of larger tiled digital cadastral maps, this effort could be completed at the same time and would reduce the cost estimate by approximately $5,000.

Regardless of the selected option or database design used for transactional updates, we strongly recommend the following changes to the MCAMLIS cadastral database design:

- Maintain cadastral data as seamless county-wide layers
- Represent subdivisions, CSM's, and condominiums as polygons with attributes for subdivision name, CSM name, and condominium name and phase.

SUMMARY

Based on the review and recommendations made by the Technical Advisory Committee of the Internet Prototype Web Application, the implementation of a Land and Utility Information System Web Application will provide useful benefits for data sharing and distribution purposes. While most of the issues were resolved to the satisfaction of the Technical Advisory Committee, there are a couple of issues that need to be addressed and resolved. The key issues include:

- File formats and specifications
- Incremental updates

Both of these issues will require an extensive amount of time by all interested parties. File formats and specifications could be accomplished by the creation of a separate Technical Committee or by extending the responsibilities to the Technical Advisory Committee assigned to this project. It should include all other local units of government currently utilizing, or intending to utilize, the digital cadastral map files for base map purposes. As noted, current software advances in database design and data storage, may have an effect on existing participants, and their plans for conversion. Since these items were included in the scope of this project, Ruekert/Mielke should be responsible for conducting the necessary research and assisting in the development of standard file formats and specifications, and for assisting Milwaukee County with the implementation of procedures for maintaining and deploying incremental digital cadastral updates.

The following are other Technical Advisory Committee recommendations that require formal action by the MCAMLIS Steering Committee:

- Elimination of MCAMLIS license agreement for the use of MCAMLIS digital cadastral and topographic products.

- Preparation and maintenance of larger tiled digital cadastral and topographic files. Total cost for the preparation of larger tiled digital cadastral and topographic file was estimated to be between $75,000 - $85,000.

- Data conversion tool. The total cost to develop an automated tool to systematically prepare the required municipality tiled digital cadastral maps from county-wide coverages was estimated to be between $3,000 - $5,000.

- Implement procedures and database design recommendations to support transactional updates. Cost estimate: $26,000-$38,000.

Finally, Report No. 4 will include a summary of all information collected and will include an analysis of the project results and estimated costs.

APPENDIX A – PARTICIPANT QUESTIONNAIRES

MCAMLIS Inventory Questionnaire

Attachment 1

Organization: _____ Date: _____

Completed by: _____

Define the extent of the geographic area for which you use, or would use, the MCAMLIS products:

_____

SECTION A: MCAMLIS PRODUCTS

1. Do you use MCAMLIS products: ☐ Yes ☐ No

   Please describe your department or organization's use of the following MCAMLIS products, including both hard copy and digital:

Cadastral	Hard Copy:	
	Digital:	
Topographic	Hard Copy:	
	Digital:	

SECTION A: MCAMLIS - Cadastral Files

1. **Do you update the digital cadastral files: Yes ☐ No ☐**

   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the cadastral files more often?** Yes ☐ No ☐

   If yes, how often

   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly

   If yes, please explain which cadastral features need to be provided:

   _____

   Delivered in what software? _____

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

   _____

   _____

5. **Is it important to track the history of updates** Yes ☐ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☐ No ☐

   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital cadastral maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

   _____

   _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? _____

SECTION A: MCAMLIS – Topographic Files

1. **Do you update the digital topographic files: Yes ☐ No ☐**
   If yes, please answer the following:

   In what department: _____

   By how many employees: _____

   Individual responsible for updates: _____

   How often: _____

2. **Would you like to see MCAMLIS update the topographic files more often? Yes ☐ No ☐**
   If yes, how often
   ☐ Daily ☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ Quarterly ☐ Yearly
   If yes, please explain which topographic features need to be provided:

   _____

   Delivered In what software: _____

3. **Do you use custom tools Yes ☐ No ☐**

   If yes, who developed tools? _____

   In what software or macro language was tool developed? _____

4. **Explain process of obtaining source materials**

_____

_____

5. **Is it important to track the history of updates** Yes ☐ No ☐

6. **Do you think updates could be handled by an outside agency?** Yes ☐ No ☐
   If no, please explain reason(s)

   _____

   _____

7. **If updates were supplied by an outside agency, could you maintain your organization's information in a separate file?** Yes ☐ No ☐

8. **Have you successfully integrated or imported digital information from other software into the digital topographic maps?** Yes ☐ No ☐

   If yes, what software File format *(Please describe information that was integrated or imported)*

   _____

   Were custom tools developed? Yes ☐ No ☐

   If yes, please explain _____

9. **Have you compiled a seamless map of the digital cadastral maps?** Yes ☐ No ☐

   If no, would you like to have this done by MCAMLIS? Yes ☐ No ☐

   If yes, what would be the desired extent of your seamless map? _____

SECTION B: SOFTWARE

Do you use CAD or GIS software: Yes ☐ No ☐

If yes, please list software products, operating system, your staff's expertise with each, and, if applicable, what MCAMLIS product is used with each software:

Software	OS	Expertise 1(low)-3(high)	MCAMLIS Product

SECTION C: INTERNET

Do you have internet access: Yes ☐ No ☐

If no, do you have plans to obtain access? Yes ☐ No ☐

If yes, how soon?

1-3 months ☐ 3-6 months ☐ 6-12 months 1-2 years ☐ more an 2 years ☐

If yes, what type and speed of an internet connection do you have:

56 K ☐ 128 KB ☐ Cable ☐ DSL ☐ T1 ☐ Other ☐ Connection Speed _____

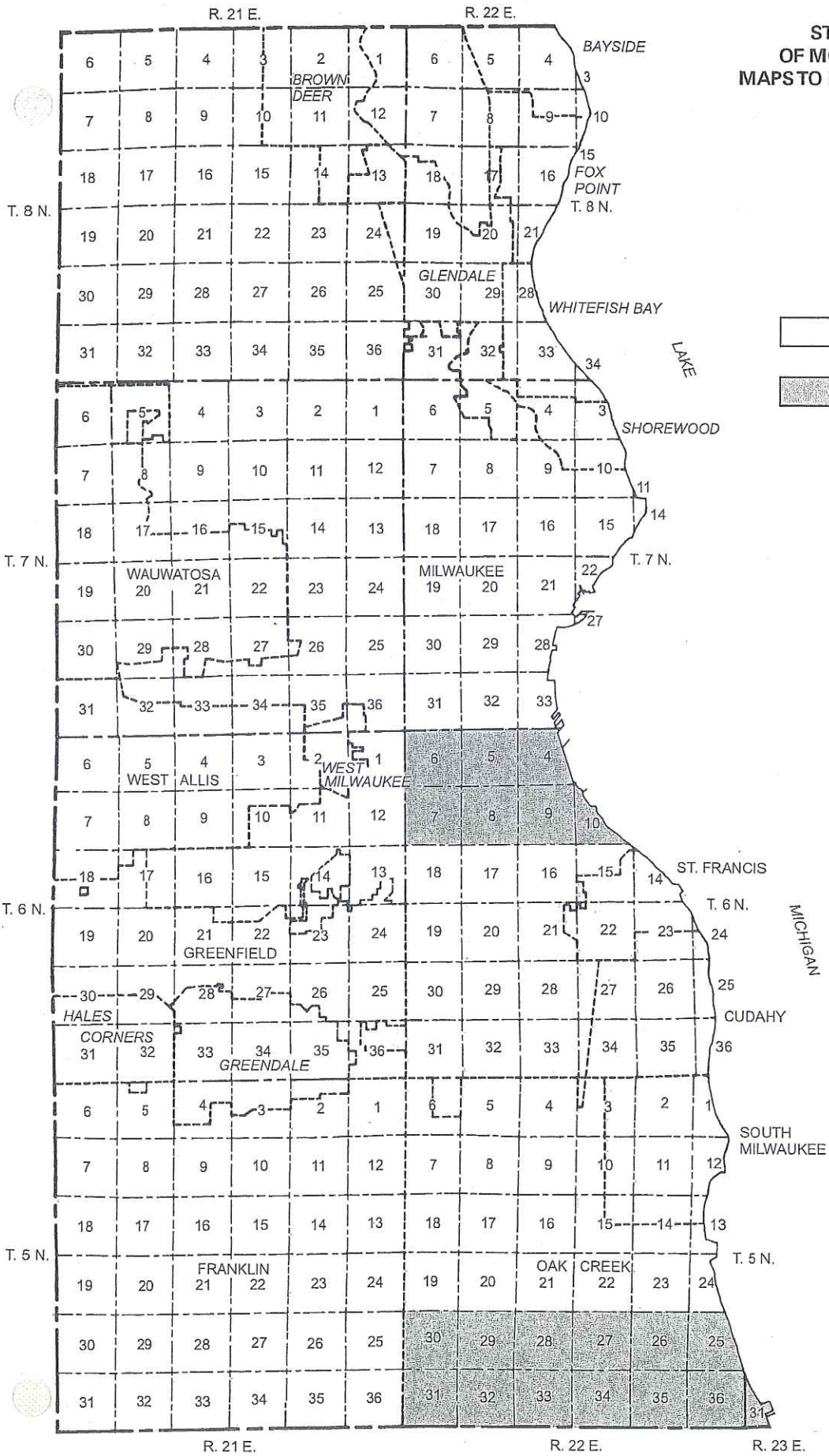
If yes, what type of internet browser do you use: _____

Please return to:

Thomas J. Tym
Ruekert/Mielke
W233 N2080 Ridgeview Parkway
Waukesha WI 53188-1020
tjtym@ruekert-mielke.com

By: Friday, October 5, 2001

STATUS OF THE CONVERSION OF MCAMLIS DIGITAL TOPOGRAPHIC MAPS TO ESRI ARCINFO COVERAGE FORMAT



CONVERTED AND AVAILABLE FOR DISTRIBUTION

CONVERSION AND QUALITY CONTROL IN PROGRESS - - NOT AVAILABLE FOR DISTRIBUTION

SEPTEMBER 16, 2002

GRAPHIC SCALE 0 1½ 3 MILES

Source: MCAMLIS PROJECT MANAGER.

STATUS OF MCAMLIS MAPPING PROJECTS BEING CARRIED OUT BY CITY OF MILWAUKEE STAFF

The City of Milwaukee recompilation project is comprised of 40 U.S. Public Land Survey one-quarter section-based maps as delineated on the accompanying status map. These cadastral maps are being compiled to fit the MCAMLIS survey control system utilizing original land records and associated descriptions and documents. This work has been carried out by the staff of the City of Milwaukee, Infrastructure Service Division, Central Drafting and Records Office. As of November 30, 2001, all 40 of the quarter-section maps have been completed by the City of Milwaukee staff and have been accepted by the SEWRPC staff as of this date as being in compliance with those specifications.

The City of Milwaukee cadastral map transformation project (Phase 1) consists of 93 U.S. Public Land Survey one-quarter-section-based existing City of Milwaukee maps that are being refit to the MCAMLIS survey control system utilizing computer algorithms. These 93 one-quarter section maps are delineated on an accompanying status map. This work is being carried out by the staff of the City of Milwaukee, Department of Administration, Information and Technology Management Division. As of October 31, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation all 93 of these map sheets, all of which have been sent to SEWRPC staff for their review to determine compliance with MCAMLIS specifications and standards. Of the 93 map sheets submitted, 73 have been accepted by SEWRPC staff as meeting the relevant specifications. The agreement governing this project calls for work to be completed by October, 2002. Currently, expect that this project will be completed by first quarter 2003.

The City of Milwaukee cadastral map transformation project (Phase 2) consists of 24 U.S. Public Land Survey one-quarter-section-based maps as delineated on an accompanying status map. All 24 of the map sheets have been accepted as being in compliance with the specifications in this project area. The agreement governing this project calls for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 3) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. All 24 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 4) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of October 31, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation of all 24 map sheets. All 24 maps from this project area have been submitted to SEWRPC staff for review and, accordingly, 16 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by December 2002. There is currently no reason to expect that the project completion schedule will not be met.

The City of Milwaukee cadastral map transformation project (Phase 5) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of October 31, 2002 City of Milwaukee Geographic Information Systems staff have completed the transformation of all 24 of these map sheets. All 24 maps from this project area have been submitted to SEWRPC staff for review and, accordingly, 15 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by December 2002. There is currently no reason to expect that the project completion schedule will not be met.

The City of Milwaukee cadastral map transformation project (Phase 6) consists of 26 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. No maps from this project area have been submitted to SEWRPC staff for review. The agreement governing this project

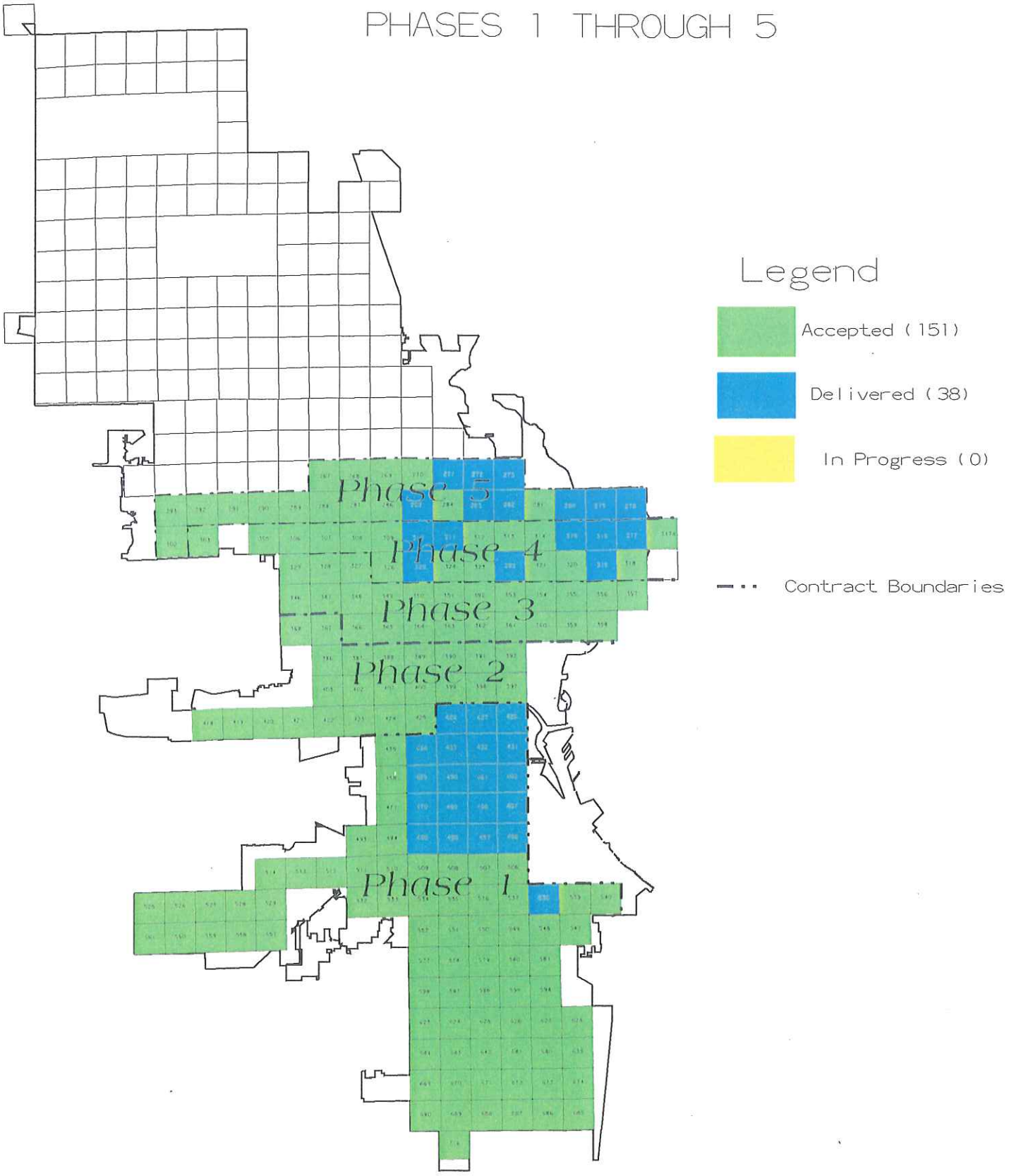
calls for work to be completed by December 2003. There is currently no reason to expect that the project completion schedule will not be met.

* * *

NAO/TDP/ame
10-31-02
#43453 v1 - status-mcamlis projects at c/milw staff

MCAMLIS Transformation Project Progress Map

PHASES 1 THROUGH 5

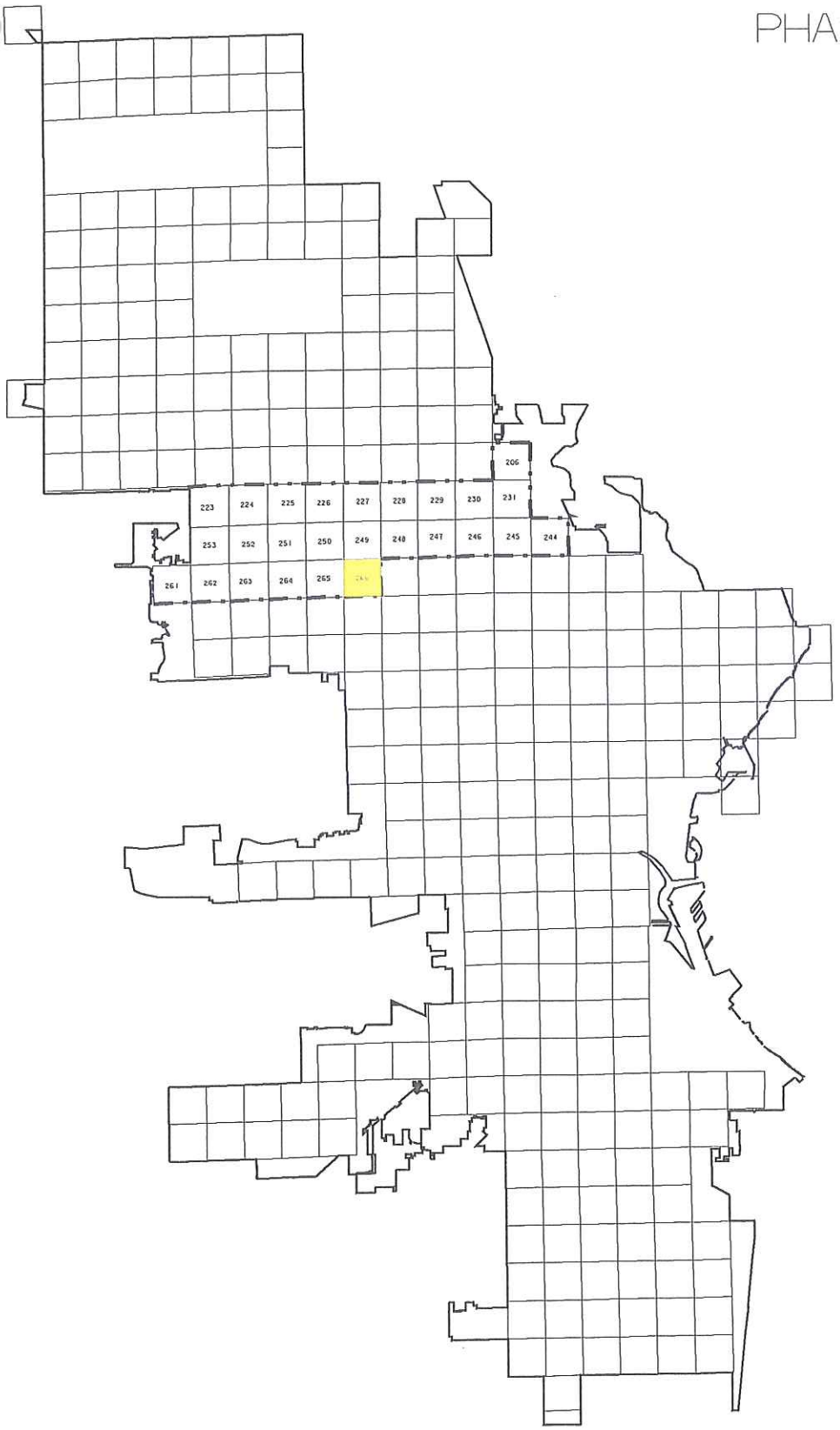


STATUS AS OF 10/31/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

MCAMLIS Transformation Project Progress Map

PHASE 6



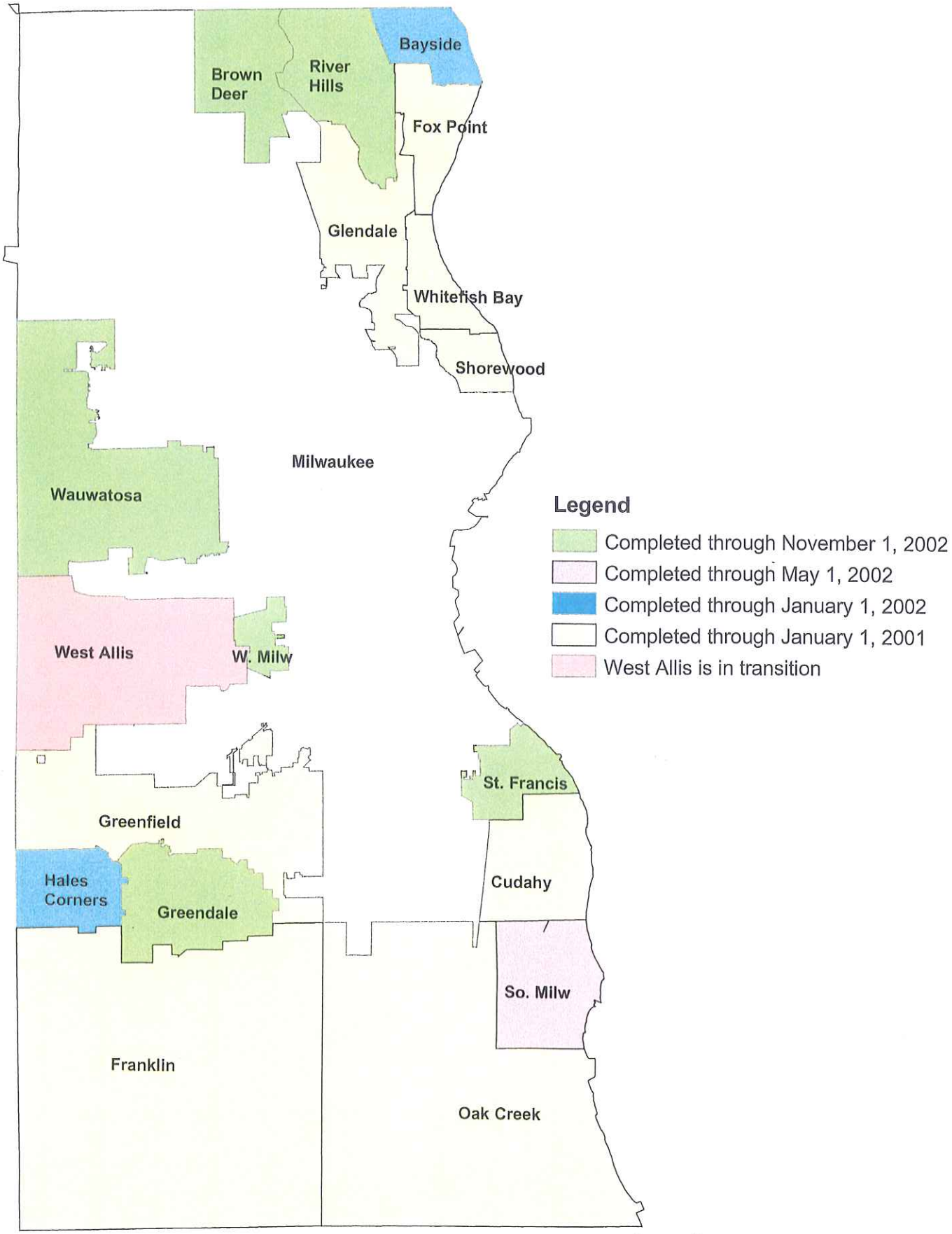
Legend

- Accepted (0)
- Delivered (0)
- In Progress (1)
- Contract dated 03/01 24 quarter sections Boundary

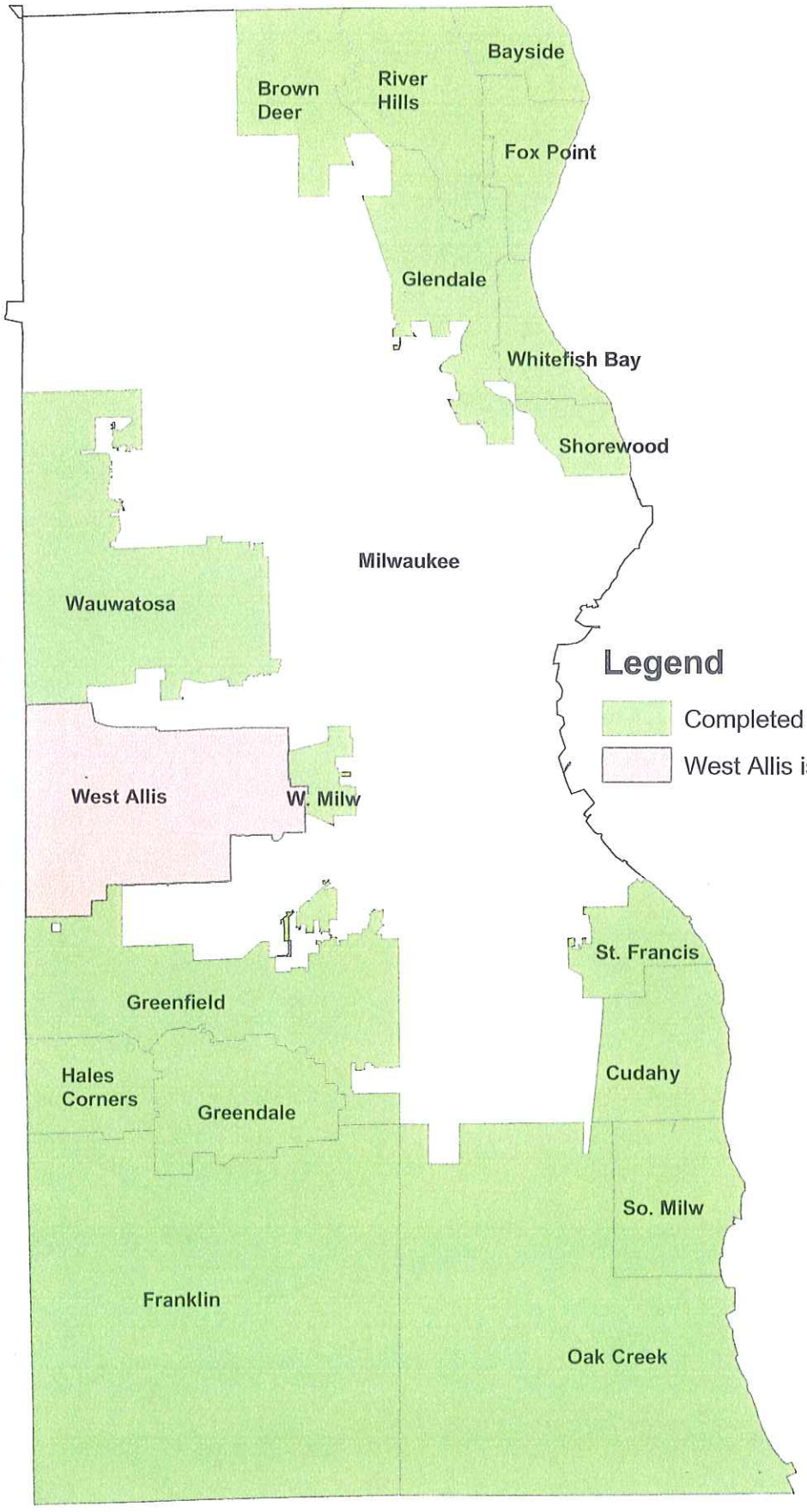
STATUS AS OF 10/31/02

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

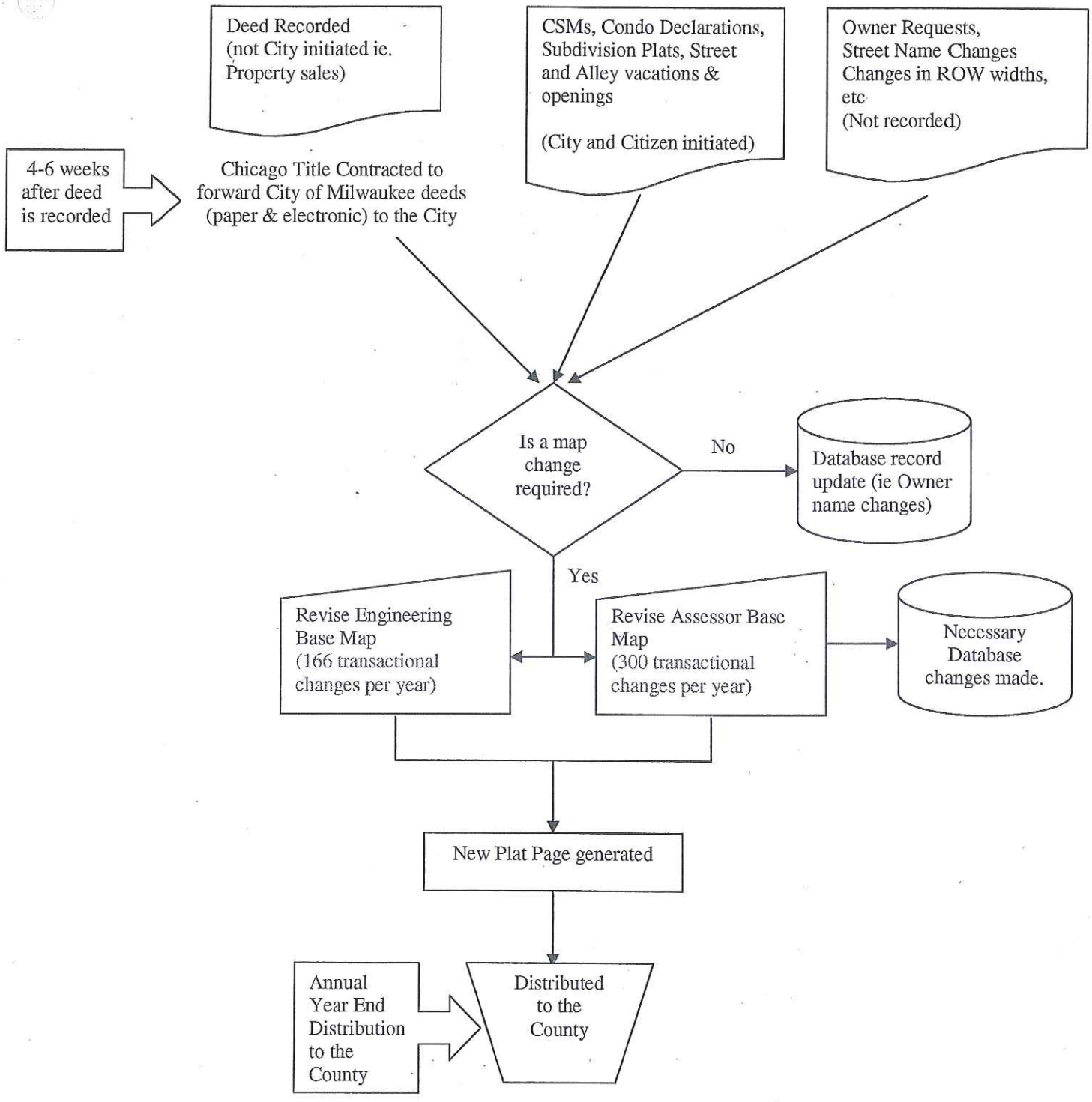
Milwaukee County Address Status as of November 6, 2002



Milwaukee County Cadastral Status as of November 6, 2002



Current Workflow of Changes to City of Milwaukee Cadastral Maps



EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2002	**2002**	
70.	1.	Urban Ecology Center, Inc.	01/28/02
71.	2.	PBS & J	02/19/02
72.	3.	Schlitz Audubon Nature Center	03/18/02
73.	4.	URS Corporation	05/10/02
74.	5.	Architects/Planners	05/22/02
75.	6.	STS Consultants, Ltd.	07/19/02
76.	7.	HNTB Corporation	07/26/02
77.	8.	Farr Associates, Inc.	08/06/02
78.	9.	Welch Hanson Associates	08/23/02
79.	10.	Walker Parking Consultants, Inc.	08/27/02
80.	11.	Central City Construction, Inc.	10/03/02
81.	12.	R. A. Smith & Associates	10/08/02
82.	13.	University of Wisconsin-Madison Department of Landscape Architecture	10/15/02
83.	14.	HDR, Inc.	10/17/02
84.	15.	Hey and Associates, Inc.	10/22/02

#58437 v1 - MCAMLIS-EXECUTED LIC. AGREEMNTS

	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	10/312002 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0		0
Current Period Reserve	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Recording Fees (**$4.00** Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	731,404	7,713,049
Recording Fees (**$1.00** Portion)												72,968	183,753	256,721
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	125,090	1,555,278
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0		1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0		520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	1,040,247	11,605,048
TOTAL FUNDS AVAILABLE	413,886	920,323	1,420,514	1,761,142	1,504,485	1,778,755	2,073,474	2,024,667	2,041,364	2,101,100	1,992,266	1,707,402	1,223,999	11,788,800
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	694,139	3,584,325
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0		950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0		128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0		41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0		144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	823,638	7,893,155
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0		119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0		1,953
Project Conversion Costs														0
SEWRPC Staff and Training														0
Computer Hardware/Software														0
ROD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0		7,088
Computer Maintenance														0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0		26
Rent and Utilities														0
Database Maintenance and Updates														0
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	295	1,252
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-1,540	-24,711
Miscellaneous									40	0	0	0		40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	822,393	8,313,297
TOTAL EXPS / ENCUMBRANCES	130,586	424,401	847,466	1,466,012	444,072	468,109	798,615	942,349	915,612	992,412	1,427,806	1,523,650	1,516,532	11,897,622
NET AVAIL FUNDS (END RESERVE)	283,300	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	-292,533	-108,822

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2002, and $20,000 in 2003.

C O P Y

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive -- PO Box 1607 -- Waukesha, Wisconsin 53187-1607
Telephone (262) 547-6721
Fax (262) 547-1103

January 3, 2003

Mr. Philip C. Evenson
Executive Director
Southeastern Wisconsin Regional Planning Commission
P. O. Box 1607
Waukesha, WI 53188-1607

Dear Mr. Evenson:

As you know, the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee, at its meeting held on October 8, 2002, received a letter from the Acting Director of the Milwaukee County Department of Public Works requesting that the Steering Committee consider transferring project management responsibilities and services from the Regional Planning Commission staff to the Milwaukee County Department of Public Works staff. The Steering Committee, at its meeting held on December 3, 2002, acted to create a subcommittee to consider this matter in detail and to make a recommendation concerning its implementation to the Steering Committee as soon as possible.

Accordingly, we are hereby asking you to serve as Chairman of the subcommittee. The subcommittee is charged with investigating and determining desirability, feasibility, scope, means, timing, and fiscal impacts of a transfer of the MCAMLIS project management responsibilities from the Regional Planning Commission to the Milwaukee County Department of Public Works. More specifically, current project management staff will assist the subcommittee in preparing a memorandum report to the Steering Committee setting forth the findings and recommendations of its investigation.

We trust that you will agree to serve as Chairman of this important subcommittee.

Sincerely,

Kurt W. Bauer
Chairman

KWB/wb
#78739 v1 - MCAMLIS SUBCOMMITTEE LETTER

15

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c/o Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive -- PO Box 1607 -- Waukesha, Wisconsin 53187-1607
Telephone (262) 547-6721
Fax (262) 547-1103

January 3, 2003

Mr. Gregory G. High
Director, Architectural and Engineering Services
Milwaukee County Department of Public Works
2711 W. Wells Street, 2nd Floor
Milwaukee, WI 53208

Dear Mr. High:

As you know, the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee, at its meeting held on October 8, 2002, received a letter from the Acting Director of the Milwaukee County Department of Public Works requesting that the Steering Committee consider transferring project management responsibilities and services from the Regional Planning Commission staff to the Milwaukee County Department of Public Works staff. The Steering Committee, at its meeting held on December 3, 2002, acted to create a subcommittee to consider this matter in detail and to make a recommendation concerning its implementation to the Steering Committee as soon as possible.

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Kurt W. Bauer
Chairman

KWB/wb

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Telephone (262) 547-6721
Fax (262) 547-1103

January 3, 2003

Mr. Thomas F. Lewandowski
Fiscal and Management Analyst
Milwaukee County Department of Administration
901 No. 9th Street
Milwaukee, WI 53233

Dear Mr. Lewandowski:

As you know, the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee, at its meeting held on October 8, 2002, received a letter from the Acting Director of the Milwaukee County Department of Public Works requesting that the Steering Committee consider transferring project management responsibilities and services from the Regional Planning Commission staff to the Milwaukee County Department of Public Works staff. The Steering Committee, at its meeting held on December 3, 2002, acted to create a subcommittee to consider this matter in detail and to make a recommendation concerning its implementation to the Steering Committee as soon as possible.

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We trust that you will agree to serve on this important subcommittee.

Sincerely,

Kurt W. Bauer
Chairman

KWB/wb

#78739 v1 - MCAMLIS SUBCOMMITTEE LETTER

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W239 N1812 Rockwood Drive -- PO Box 1607 -- Waukesha, Wisconsin 53187-1607
Telephone (262) 547-6721
Fax (262) 547-1103

January 3, 2003

Mr. John LaFave
Milwaukee County Register of Deeds
901 N. 9th Street, Room 103
Milwaukee, WI 53233

Dear Mr. LaFave:

As Milwaukee County Register of Deeds, you are, by County Board designation, the County Land Information Officer, and, as such, a member of the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee. That Steering Committee, at its meeting held on October 8, 2002, received a letter from the Acting Director of the Milwaukee County Department of Public Works requesting that the Steering Committee consider transferring project management responsibilities and services from the Regional Planning Commission staff to the Milwaukee County Department of Public Works staff. The Steering Committee, at its meeting held on December 3, 2002, acted to create a subcommittee to consider this matter in detail and to make a recommendation concerning its implementation to the Steering Committee as soon as possible.

Since this is a matter which very much concerns your Office and your department, we are hereby requesting you to serve on the subcommittee with Mr. Philip C. Evenson serving as Chairman of the subcommittee. The subcommittee is charged with investigating and determining desirability, feasibility, scope, means, timing, and fiscal impacts of a transfer of the MCAMLIS project management responsibilities from the Regional Planning Commission to the Milwaukee County Department of Public Works. More specifically, current project management staff will assist the subcommittee in preparing a memorandum report to the Steering Committee setting forth the findings and recommendations of its investigation.

We trust that you will agree to serve on this important subcommittee. Should you have any questions concerning this matter, please do not hesitate to call Mr. Evenson or me at 262-547-6721.

Sincerely,

Kurt W. Bauer
Chairman

KWB/wb

#78739 v1 - MCAMLIS SUBCOMMITTEE LETTER

AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, 2003, by and between the Southeastern Wisconsin Regional Planning Commission (hereinafter referred to as the "Commission"; and the Milwaukee County Automated Mapping and Land Information System Steering Committee (hereinafter referred to as the "Steering Committee").

WITNESSETH:

WHEREAS, the Commission is authorized by Section 66.0309 of the *Wisconsin Statutes* to make studies and prepare plans for, and to provide advisory services to local governments, and to act as a coordinating agency for planning activities within its jurisdictional area; and

WHEREAS, by Resolution No. 88-379, the Milwaukee County Board of Supervisors requested the Southeastern Wisconsin Regional Planning Commission to conduct a feasibility study pertaining to an automated mapping and land information system; and

WHEREAS, the requested feasibility study was completed and documented in SEWRPC Community Assistance Planning Report No. 177, Feasibility Study for a Milwaukee County Automated Mapping and Land Information System, published in October 1989; and

WHEREAS, by resolution adopted on November 8, 1990, the Milwaukee County Board of Supervisors, working in cooperation with the utilities concerned, created a public-private partnership to implement the proposed Milwaukee County automated mapping and land information system, including creation of a Steering Committee to provide oversight in the implementation of the system recommended in SEWRPC Community Assistance Planning Report No. 127; and

WHEREAS, the aforereferenced Milwaukee County resolution adopted on November 8, 1990, further authorized the execution of a Cooperative Agreement between Milwaukee County and the public and private utilities serving Milwaukee County, whereby the County and such utilities agreed to jointly fund the development of the Milwaukee County automated mapping and land information system, such Agreement delegating to the aforereferenced Steering Committee full responsibility for all policy matters relating to the conduct of the work program, including proposed contracts and specifications and the selection of contractors; and

WHEREAS, the Steering Committee on July 29, 1991, formally requested the Commission to accept the responsibilities of Project Manager for the implementation of the recommended automated mapping and land information system; and

WHEREAS, the Executive Committee of the Commission on August 21, 1991, authorized Commission assistance in execution of the work required to implement the Milwaukee County automated mapping and land information system in the manner envisioned in the aforereferenced Commission report; and

WHEREAS, the Southeastern Wisconsin Regional Planning Commission, since September, 1991, has carried out the role of Project Manager on behalf of the Steering Committee; and

WHEREAS, the Steering Committee is desirous of continuing the current project management relationship with the Commission; and

WHEREAS, Sections 66.0309(12)(b) and 66.0301 of the *Wisconsin Statutes* authorize the Commission to enter into contracts with local units of government and their agents to make and implement studies and plans and to otherwise provide advice and services.

NOW, THEREFORE, in consideration of these premises and of their mutual and dependent promises and agreements, the parties hereto contract and agree as follows:

I. Scope of Work

In general, the Commission agrees to perform all of the tasks specified herein which include Project Management and Related Staff Services, and Operations Services. Other tasks to be completed by the Commission not covered herein will be carried out under separate agreements.

A. Project Management and Related Staff Services

The Commission will provide the professional staff services, including the services of a Project Manager, necessary to manage the Milwaukee County automated mapping and land information system projects throughout the duration of this agreement, and beyond subject to amendment of this agreement. This responsibility includes the identification and recommendation of work projects to be carried out under the MCAMLIS program, the preparation and submittal of grant applications to the Wisconsin Land Information Board on behalf of the MCAMLIS Steering Committee, the fiscal management of MCAMLIS projects, and the quality control of end products produced under MCAMLIS contracts and subcontracts.

The Commission as Project Manager will serve as staff to the Steering Committee in the preparation for and the carrying out of its meetings. Additionally, the Commission will keep all minutes of the Steering Committee meetings and will house the records of the Steering Committee in the Commission offices.

B. Operations Services

The Commission agrees to perform day-to-day operations services attendant to the Milwaukee County automated mapping and land information system until the end of the period specified in this contract. This will include housing the MCAMLIS produced end products, handling requests for the distribution of MCAMLIS produced products as approved by the Steering Committee, and researching and implementing hardware and software data transfer protocols and standards. Additionally, the Commission will supply routine maintenance as required in the housing of MCAMLIS data, and continue to integrate new materials created under MCAMLIS projects as they become available.

In addition to the services described above, the Commission will be responsible for developing and managing any and all sub-contracts to qualified engineering firms participating in the conduct of MCAMLIS mapping projects. Furthermore, the MCAMLIS Project Manager as an employee of the Commission will serve as liaison to the MCAMLIS attorney related to the development of the MCAMLIS data sharing policy, and

in matters pertaining to the copyright of MCAMLIS derived products.

II. Timing

All services to be performed under this Agreement shall be carried out over the period beginning January 1, 2003, and ending on December 31, 2004.

III. Compensation to Commission

The Steering Committee shall pay to the Commission the following amounts for those services described above:

SERVICES PROVIDED	AMOUNT
Project Management and Related Staff Services	$150,000
Operations Services	$ 50,000
TOTAL	**$200,000**

IV. Method of Compensation

The Commission shall submit invoices to the Steering Committee during the course of this Agreement for partial payment of the total Agreement amount of $200,000. The Steering Committee shall pay to the Commission the amounts shown on the invoices upon receipt of said invoices.

If, during the course of carrying out the work elements identified herein, additional unanticipated work efforts not identified in the scope of work contained herein become necessary for successful project completion in the judgement of the Commission or in the judgement of the Steering Committee, then it is agreed that the Commission can request an amendment to the scope of work, with an attendant increase in the maximum amount payable to the Commission under this Agreement. Such an amendment would require the approval of both the Commission and the Steering Committee before becoming effective.

The Commission shall permit authorized representatives of the Steering Committee or its member organizations to inspect and audit all data and records of the Commission related to carrying out this Agreement for a period of up to three years after completion of the Agreement.

V. Support and Materials to be Provided by Others

It is assumed that the members of the Steering Committee, on behalf of their respective public agencies and private utilities, agree to make available without charge to the Commission all existing digital and hardcopy maps, documents, reports, legal records, and related materials deemed by the Commission to be needed to carry out its responsibilities under this Agreement. If this assumed level of cooperation does not materialize, then it is agreed that the Commission may, at its discretion, request payment from the Steering Committee for these costs above and beyond the total amount set forth in Section III of this Agreement.

VI. Ownership of Data

It is agreed that all of the automated mapping base data and related materials collected and developed under this Agreement shall be the exclusive property of the Steering Committee. The Steering Committee hereby grants to the Commission permission to use such data in

performing its regional planning work program. The Commission agrees not to release such data to others without the prior consent of the Steering Committee. At the end of the Agreement, the Commission agrees to turn over to a designated MCAMLIS Project Manager all materials and computer hardware and software acquired and/or developed as a part of this Agreement.

VII. Subcontracts

The Commission and Steering Committee agree that it may be desirable to perform certain of the tasks associated with work projects conducted during the life of this Agreement through subcontracts with qualified firms. In addition, it is envisioned that subcontracts may be required for the acquisition of computer hardware and software and communication devices. The Commission agrees to bring any such subcontracts to the Steering Committee for its approval prior to execution.

VIII. Early Termination of Agreement

This Agreement may be terminated at any time by the mutual agreement of both parties. Such termination is to be effected through a Letter Agreement executed by both parties. This Letter Agreement shall specify the date upon which the Agreement is to be terminated and shall be executed by both parties at least 30 calendar days prior to the effective date of such termination. In such event, all finished or unfinished documents, maps, photographs, and reports prepared or under preparation by the Commission under this Agreement shall, at the option of the Steering Committee, become its property and the Commission shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents, maps, photographs, and reports.

IX. Indemnity

Except for acts done or taken at the direction of or pursuant to the Steering Committee policy or procedures, the Commission agrees to the fullest extent permitted by law, to indemnify, defend and hold harmless, the Steering Committee, and its agents, officers and employees, from and against all loss or expense including costs and attorney's fees by reason of statutory benefits under Worker Compensation Laws, and/or liability for damages including suits at law or in equity, caused by any wrongful, intentional, or negligent act or omission of the Commission, or it's (their) agents which may arise out of or are connected with the activities covered by this agreement.

X. Insurance

The Commission, as an agency of the state, is self-funded for liability (both public and property) under Section 893.82 and Section 895.46 (1) of the Statutes. As a result, such protection, as is afforded under respective Wisconsin Statutes, is applicable to officers, employees, and agents while acting within the scope of their employment or agency. Since this is statutory indemnification, there is no liability policy as such that can extend protection to any other.

XI. Authorization

The Steering Committee approved the execution of this Agreement by action taken on December 3, 2003.

IN WITNESS WHEREOF, the Commission and the Steering Committee have executed this Agreement, as of the date first above written.

ATTESTING WITNESS

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

By_____
Philip C. Evenson
Deputy Secretary

By_____
Thomas H. Buestrin
Chairman

ATTESTING WITNESS

MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM STEERING COMMITTEE

By_____
Thomas D. Patterson
Project Manager

By_____
Kurt W. Bauer
Chairman

APPROVED AS TO FORM

By_____
Timothy R. Schoewe (Date)
Milwaukee County Corporation Counsel

REVIEWED AS TO INDEMNIFICATION AND INSURANCE

By_____
John R. Rath (Date)
Milwaukee County Department of Risk Management

APPROVED AS TO CHAPTER 42 DBE PROVISIONS

_____
Mildred Hyde-Demoze (Date)
Milwaukee County DBD Acting Director

City of Milwaukee

Department of Administration
Information and Technology
Management Division

John O. Norquist
Mayor
David R. Riemer
Administration Director
Randolf A. Gschwind
Chief Information Officer

Date: November 21, 2002

To: Mr. Kurt W. Bauer
MCAMLIS Chairman

From: Nancy A. Olson NAO

Subject: Upcoming MCAMLIS meeting and Internet Pilot Report

Since I am unable to attend the upcoming MCAMLIS meeting on December 3rd, I would ask that you consider my absence if a motion is made by the committee to proceed with the recommendations of the Internet Pilot Report. Since it appears that the materials will not reach me prior to my vacation, I would like to have an opportunity to review the report and to also have an opportunity to cast a vote regarding moving forward with any recommendations.

Thank you for your consideration in this matter.

#79494 v1 - COVER-INTERNET PROTYPE NO. 4

MCAMLIS
LAND AND UTILITY INFORMATION SYSTEM INTERNET PROTOTYPE
Report No. 4

January 2003

RUEKERT/MIELKE
W233 N2080 Ridgeview Parkway
Waukesha, Wisconsin 53188-1020

TABLE OF CONTENTS

INTRODUCTION

This represents the fourth and final report concerning the potential implementation of a web-based land and utility information system for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS). As a consultant to the MCAMLIS Steering Committee, Ruekert & Mielke, Inc., conducted the study. The results of the study are set forth in three previous reports. This report summarizes the basic findings and conclusions drawn from the study and sets forth several recommendations.

AREAWIDE NEED FOR INTEGRATION OF LAND BASE AND UTILITY DATA NOT DEMONSTRATED

No evidence was found in conducting the study of a compelling need to structure, on an areawide basis, an integrated set of traditional MCAMLIS land base data with public and private utility system data. While individual units of government may desire to achieve such integration, that objective can best be achieved on a case-by-case basis.

OVERRIDING SECURITY CONSIDERATIONS RENDER AREAWIDE INTEGRATION OF MCAMLIS LAND BASE AND UTILITY SYSTEM DATA INFEASIBLE

Growing security-related concerns relative to the use and dissemination of utility system data render any areawide, web-based distribution of such data infeasible. Rather, both public and private utilities now desire to strictly license the use and distribution of utility system data with appropriate security safeguards. Moreover, efficiency and effectiveness as well as security concerns tend to favor making utility system data available on an "as needed," project-by-project basis. Consequently, each unit of government will need to deal individually with each utility provider to ascertain the conditions under which utility system data would be made available for their use. It is expected that licensing procedures will govern the conditions of such use. Given this and the previous finding, there is no direct role for MCAMLIS with regard to the matter of full integration of land base and utility system data.

CREATION OF SEAMLESS MCAMLIS LAND BASE MAPS

Since its inception, the MCAMLIS land base data has been developed, stored, and disseminated on the basis of U. S. Public Land Survey one-quarter sections. In order to facilitate the use of this data by the constituent municipalities and by Milwaukee County, it is proposed that the MCAMLIS land base data be

stored and disseminated in a seamless fashion on the basis of "tiles" to be defined for each municipality and for Milwaukee County. It is feasible to create a seamless system of mapping that recognizes the overlapping nature of each community's geographic area of concern and interest. It is recommended that the MCAMLIS Steering Committee authorize the project management staff to develop a project that would address the seamless mapping needs and present that project to the Committee for its consideration.

Sewpic can provide this

TRANSACTIONAL UPDATES OF CADASTRAL DATA (implementation to occur through report #3

One of the enhancements to the MCAMLIS cadastral mapping data program involves the identification to the constituent municipalities of updates to cadastral maps. By modifying the cadastral mapping updating protocol now in place, it is feasible to deliver to each municipality in Milwaukee County, not only an updated cadastral map for that community's "tile," but also to embed in the database information that allows the end user to identify all additions, deletions, and modifications to existing parcel polygons. It is recommended that the MCAMLIS Steering Committee authorize the project management staff to develop a follow-up project that would provide the Milwaukee County Register of Deeds with the software and procedures required to systemically accommodate the need for transactional update information with respect to cadastral maps for the municipalities and MCAMLIS program participants within the County.

attributes were not included

Under this recommendation, MCAMLIS would maintain current the MCAMLIS topographic and cadastral maps for the entire County, including the area within the City of Milwaukee. In addition, the City of Milwaukee will maintain a duplicate set of cadastral maps prepared to City specifications.

DEPLOYMENT OF UPDATED MCAMLIS LAND BASE DATA

The MCAMLIS land base data consists of three components: topographic mapping, cadastral mapping, and street addressing. Presently, updates to this information are transmitted to Milwaukee County, its constituent municipalities, and licensed users on an on-request basis via the medium of compact disks. The internet prototype study demonstrated that it would be feasible to use internet technology to distribute such information. It is recommended, however, that the delivery of updated information through web technology be made the responsibility of the County and not MCAMLIS. Moreover, any determination to deliver data using web technology should await further decisions regarding the role which Milwaukee County is to assume in terms of MCAMLIS program administration.

Given the foregoing recommendation, it became unnecessary to address the production environment and strategic implementation process for the use of web technology as outlined in the prospectus for the project. However, a means should be developed to inform potential users of the status of, and current developments under, the MCAMLIS program. This could involve publication of a newsletter or use of electronic transmission of program information.

* * *

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MILWAUKEE COUNTY AUTOMATED MAPPING AND LAND INFORMATION SYSTEM

c/o Southeastern Wisconsin Regional Planning Commission
W239 N1812 Rockwood Drive -- PO Box 1607 -- Waukesha, Wisconsin 53187-1607
Telephone (262) 547-6721
Fax (262) 547-1103

January 3, 2003

Mr. Gregory G. High
Director, Architectural and Engineering Services
Milwaukee County Department of Public Works
2711 W. Wells Street, 2nd Floor
Milwaukee, WI 53208

Dear Mr. High:

As you know, the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee, at its meeting held on October 8, 2002, received a letter from the Acting Director of the Milwaukee County Department of Public Works requesting that the Steering Committee consider transferring project management responsibilities and services from the Regional Planning Commission staff to the Milwaukee County Department of Public Works staff. The Steering Committee, at its meeting held on December 3, 2002, acted to create a subcommittee to consider this matter in detail and to make a recommendation concerning its implementation to the Steering Committee as soon as possible.

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We trust that you will agree to serve on this important subcommittee.

Sincerely,

Kurt W. Bauer
Chairman

KWB/wb

#78739 v1 - MCAMLIS SUBCOMMITTEE LETTER

Kevin White

01/16/03 10:01 AM

To: Greg High/DPW/Milwaukee County@milwco
cc: Gary Drent/DPW/Milwaukee County@milwco
Subject: Internet Prototype Report #4

Greg,

I have read through the MCAMLIS Internet Prototype Report # 4 and have the following comments:

1. Page 2 - Hosting Services: The statement that Milwaukee County does not have trained technical staff with regards to ArcIMS development and support is incorrect. I personally have experience in both ArcIMS development and support from the City of Milwaukee. Additionally, IMSD has several web developers and network technicians on staff who manage the current web server. So the assumption that the web application should be automatically housed at a private entity (Ruekert & Mielke) is false. Secondly, their assertion that the county would have to try to hire one person who possesses all these skills is misleading. I am quite sure that Ruekert & Mielke do not have just one individual, but rather they utilize a team approach. This is the same as the current arrangement we have between DPW A&E and IMSD, we provide the GIS knowledge they provide the network support.

2. Page 2 - Community Access: The system requirements call for Internet Explorer 5 only. ArcIMS supports both Internet Explorer and Netscape web browsers. This could become an issue of access for some organizations which specify a default web browser (City of Milwaukee uses Netscape) or people trying to access MCAMLIS data from platforms other that Windows. This is may not be a problem based on the survey results, but good web development practice is to have universal browser support.

3. Page 4 - Exchanging and Viewing Utility Information: It occurred to me that since there is an unwillingness on the part of some public and private utilities to provide data over the web, then we should not put any on the prototype at all. Otherwise, you create more questions about what's not available than what is available.

4. Page 7 - Strategic Implementation Process Tasks: From my perspective, if nothing else gets implemented from this study tasks 1,2 and 4 should. The conversion of the MCAMLIS data to seamless data layers will have the greatest impact for the county as a whole. Currently, all of the MCAMLIS data is in quarter section format. There is really no easy way to utilize the data for larger applications. I spend a lot of time merging/converting data into more useful pieces/formats for county projects. From the perspective of MCAMLIS, being able to provide seamless data layers to municipalities will not only save then time, but promote a greater use of the MCAMLIS products.

If you have a questions or comments please let me know.

Kevin

5A.

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
W239 N1812 ROCKWOOD DRIVE • PO BOX 1607 • WAUKESHA, WI 53187-1607• TELEPHONE (262) 547-6721
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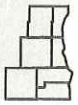


MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: SEWRPC Staff

DATE: January 10, 2003

SUBJECT: **STATUS REPORT NO. 6 ON MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT**

This memorandum sets forth the progress made on the Milwaukee County Floodland Mapping project from September 24, 2002, through December 3, 2002. This status report addresses project progress in the following three major areas and also identifies major issues that have arisen:

- Data Acquisition
- Hydrologic and Hydraulic Modeling
- Floodland Map Preparation

Overall, the Phase I portion of the project is about 50 percent completed. Progress is summarized in the attached Exhibit 1 and is graphically summarized on the map attached hereto as Exhibit 2.

DATA ACQUISITION

During the period of September 24 2002, through December 31, 2002, the following data acquisition activities were carried out:

- Work continued on coordination of the project work with the Milwaukee Metropolitan Sewerage District (MMSD), the Wisconsin Department of Natural Resources (WDNR), the Wisconsin Department of Transportation (WisDOT), and the City of Milwaukee. In general, where Phase I data have not been acquired, cooperative efforts are underway to obtain the data.

- The following data were obtained from the MMSD and its consultants and reviewed by the Commission staff: 1) hydrologic model for the Menomonee River watershed; and 2) hydraulic model for the main stem of the Menomonee River.

- As-built construction drawings were obtained from the City of Milwaukee for two Milwaukee River Parkway bridges over the west channel of the Milwaukee River near its confluence with

Lincoln Creek and for the detention basin located near N. 68th Street and W. Dean Road in the Southbranch Creek subwatershed.

- Preliminary drafts of large-scale topographic maps for 25 U.S. Public Land Survey one-quarter Sections along Lincoln Creek and Southbranch Creek were delivered. The subject maps reflect the MMSD flood control and environmental restoration projects recently completed for those streams. Review of those maps for quality control—i.e. for conformance to the specifications governing their preparation—was begun.

HYDROLOGIC AND HYDRAULIC MODELING

During the reporting period, progress on hydrologic and hydraulic modeling for Phase I of the project included the following:

Milwaukee River Watershed

- Work continued on the U.S. Army Corps of Engineer HEC-RAS river analysis systems hydraulic model of the main stem of the Milwaukee River that was developed by the Commission staff as reported in the fourth and fifth project status reports. The primary focus was on modeling the flow splits between the east, west, and main channels of the river near its confluence with Lincoln Creek and on reviewing bridge hydraulic conditions.

- Work continued on modifying the U.S. Environmental Protection Agency (USEPA) SWMM hydrologic model of the Southbranch Creek subwatershed to assure consistent application of the methodology concerned throughout the subwatershed.

Menomonee River Watershed

- Substantial work was completed on developing planned year 2020, existing channel condition hydrologic and hydraulic models. The base models used were developed under previous Regional Planning Commission studies and the MMSD Phase 1 and 2 watercourse system planning efforts.

FLOODLAND MAP PREPARATION

- During the reporting period, map preparation activities were deferred while the Commission Geographic Information Systems staff completed the conversion of all MCAMLIS topographic and cadastral maps to ArcInfo format.

MAJOR PROJECT ISSUES AND CONSIDERATIONS

1. Hydrologic Modeling Procedure Approvals—It was reported in the fifth status report, dated September 23, 2002, that a USEPA HSPF course sponsored by the U.S. Geological Survey and the Regional Planning Commission was to be held at the Commission offices in early October 2002. It was also stated that it was the Commission staff understanding that after attending that course engineering staff of the WDNR Southeast Region would begin to review the continuous simulation hydrologic analyses submitted by the Commission staff under the MCAMLIS/MMSD floodland mapping project. At that time, the apparent willingness of WDNR staff to evaluate HSPF continuous simulation models on their merits was perceived as positive development in the hydrologic modeling approval situation.

The WDNR, however, has once again altered its approach to the continuous simulation issue. On November 6, 2002, a meeting was held between the staffs of Post, Buckley, Schuh & Jernigan (PBS&J), the Federal Emergency Management Agency's (FEMA) map coordination contractor; WDNR; and SEWRPC. At that meeting, the Commission staff was informed that, as part of their review of the hydrologic study for the Pike River watershed in Kenosha and Racine Counties, PBS&J was developing a set of standards for acceptable continuous simulation modeling studies. Although FEMA and PBS&J had previously indicated to the Commission staff that they were in general agreement with the analysis for the Pike River watershed, this initiative was undertaken by FEMA in an effort to serve as an arbitrator to resolve the continuous simulation issues that were raised by WDNR. PBS&J indicated to the Commission staff that the results of their review would be available around the end of 2002, but as yet, they have not been provided. Commission staff believe that the PBS&J review should generally support the continuous simulation modeling procedures as practiced by the Commission and the MMSD. Accordingly, work is proceeding with the necessary continuous simulation hydrologic analyses for the MCAMLIS/MMSD project.

As indicated in previous status reports, SEWRPC Staff Memoranda summarizing the proposed hydrologic modeling approach for the Milwaukee River main stem and the entire Underwood Creek subwatershed were sent to WDNR and FEMA on July 24, 2002, and September 16, 2002, respectively. Both agencies are reviewing the memoranda, but to date have not replied.

2. Scheduling—It is proposed to maintain the revised Phase I project schedule set forth in the June 18, 2002, fourth status report to the Steering Committee. Under that schedule, the completion date for the Phase I work is June 30, 2003.

* * *

MGH/pk
#79324 V1 - MCAMLIS MILW CTY FLPL STATUS RPT 6

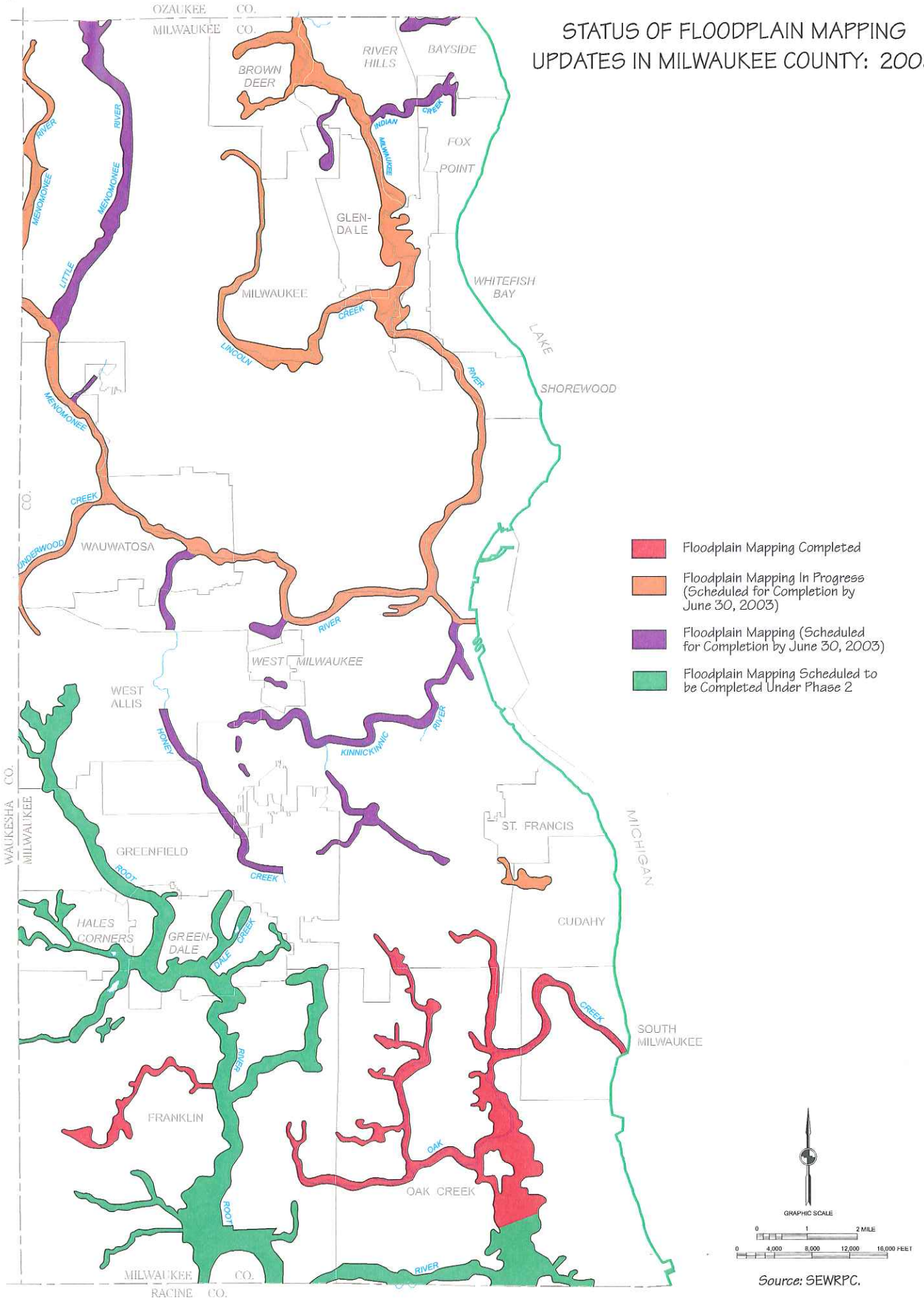
Exhibit 1

STATUS OF MCAMLIS MILWAUKEE COUNTY FLOODLAND MAPPING PROJECT: DECEMBER 31, 2002

Major Area	Data Acquisition (percent complete)					Hydrologic and Hydraulic Modeling (percent complete)					Floodland Map Preparation (percent complete)				
	20	40	60	80	100	20	40	60	80	100	20	40	60	80	100
Phase I															
Kinnickinnic River Watershed	■	■	■	■		■									
Lake Michigan Coastal Flooding Areas	■	■	■	■	■	NA	NA	NA	NA	NA					
Lake Michigan Direct Drainage Area – Fish Creek	■	■	■			■									
Menomonee River Watershed	■	■	■	■		■	■				■				
Milwaukee River Watershed	■	■	■	■	■	■	■	■	■		■				
Oak Creek Watershed	■	■	■	■		■	■	■	■	■	■	■	■	■	
Legend Creek (Root River Watershed)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

MGH/pk
#79324 V1 - MCAMLIS MILW CTY FLPL STATUS RPT 6
01/10/03

STATUS OF FLOODPLAIN MAPPING UPDATES IN MILWAUKEE COUNTY: 2003

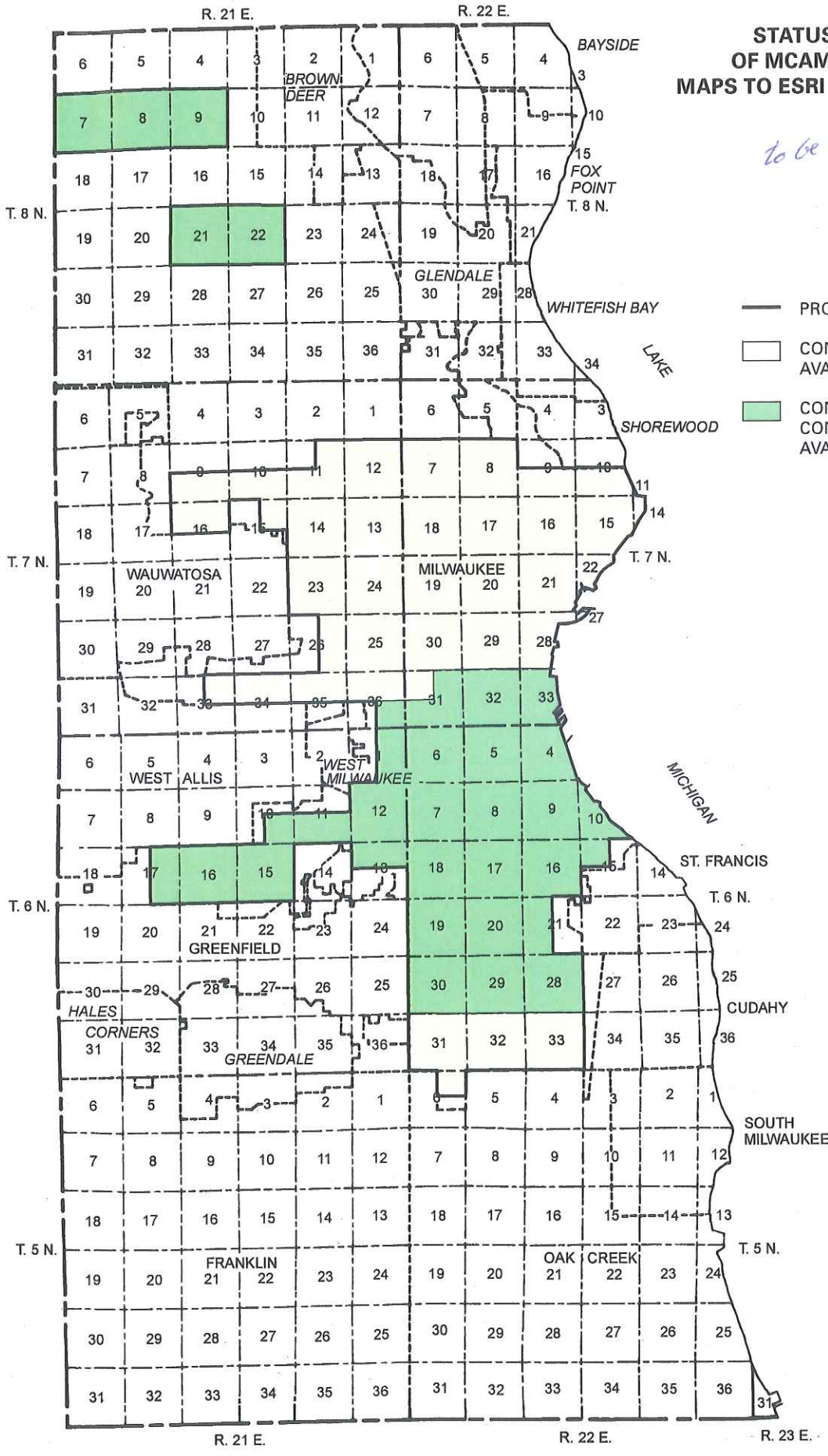


Source: SEWRPC.

5B

STATUS OF THE CONVERSION OF MCAMLIS DIGITAL CADASTRAL MAPS TO ESRI ARCINFO COVERAGE FORMAT

to be completed within 6 weeks



PROJECT AREA BOUNDARY

CONVERTED AND AVAILABLE FOR DISTRIBUTION

CONVERSION AND QUALITY CONTROL IN PROGRESS — NOT AVAILABLE FOR DISTRIBUTION

JANUARY 15, 2003

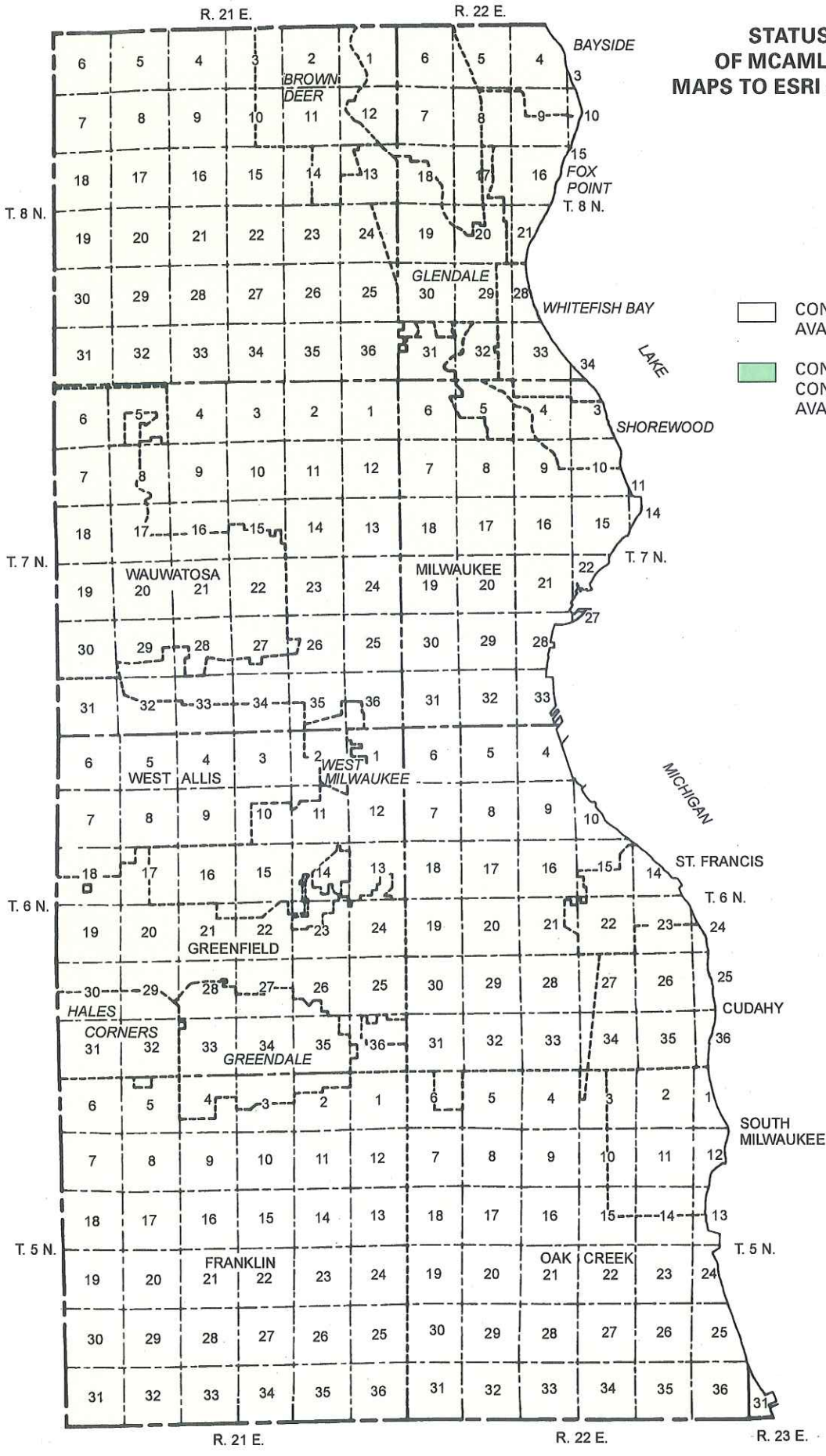
GRAPHIC SCALE

0 3 MILES

Source: MCAMLIS Project Manager.

5B

STATUS OF THE CONVERSION OF MCAMLIS DIGITAL TOPOGRAPHIC MAPS TO ESRI ARCINFO COVERAGE FORMAT



CONVERTED AND AVAILABLE FOR DISTRIBUTION

CONVERSION AND QUALITY CONTROL IN PROGRESS — NOT AVAILABLE FOR DISTRIBUTION

DECEMBER 31, 2002

GRAPHIC SCALE

0 3 MILES

Source: MCAMLIS Project Manager.

5C

STATUS OF MCAMLIS MAPPING PROJECTS BEING CARRIED OUT BY CITY OF MILWAUKEE STAFF

The City of Milwaukee recompilation project is comprised of 40 U.S. Public Land Survey one-quarter section-based maps as delineated on the accompanying status map. These cadastral maps are being compiled to fit the MCAMLIS survey control system utilizing original land records and associated descriptions and documents. This work has been carried out by the staff of the City of Milwaukee, Infrastructure Service Division, Central Drafting and Records Office. As of November 30, 2001, all 40 of the quarter-section maps have been completed by the City of Milwaukee staff and have been accepted by the SEWRPC staff as of this date as being in compliance with those specifications.

The City of Milwaukee cadastral map transformation project (Phase 1) consists of 93 U.S. Public Land Survey one-quarter-section-based existing City of Milwaukee maps that are being refit to the MCAMLIS survey control system utilizing computer algorithms. These 93 one-quarter section maps are delineated on an accompanying status map. This work is being carried out by the staff of the City of Milwaukee, Department of Administration, Information and Technology Management Division. As of January 8, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation all 93 of these map sheets, all of which have been sent to SEWRPC staff for their review to determine compliance with MCAMLIS specifications and standards. Of the 93 map sheets submitted, 85 have been accepted by SEWRPC staff as meeting the relevant specifications. The agreement governing this project calls for work to be completed by October, 2002. Currently, expect that this project will be completed by first quarter 2003.

The City of Milwaukee cadastral map transformation project (Phase 2) consists of 24 U.S. Public Land Survey one-quarter-section-based maps as delineated on an accompanying status map. All 24 of the map sheets have been accepted as being in compliance with the specifications in this project area. The agreement governing this project calls for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 3) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. All 24 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by June 2002. This project was completed February 14, 2002.

The City of Milwaukee cadastral map transformation project (Phase 4) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of January 8, 2002, City of Milwaukee Geographic Information Systems staff have completed the transformation of all 24 map sheets. All 24 maps from this project area have been submitted to SEWRPC staff for review and, accordingly, 19 map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by December 2002. Currently, expect that this project will be completed by mid-January 2003.

The City of Milwaukee cadastral map transformation project (Phase 5) also consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of January 8, 2002, all 24 maps map sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by December 2002. This project was completed January 3, 2003.

The City of Milwaukee cadastral map transformation project (Phase 6) consists of 26 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of January 8, 2003, 17 maps from this project area have been submitted to SEWRPC staff for review and accordingly, 13 maps sheets have been accepted as being in compliance with the specifications. The agreement governing this project calls for work to be completed by December 2003. There is currently no reason to expect that the

project completion schedule will not be met.

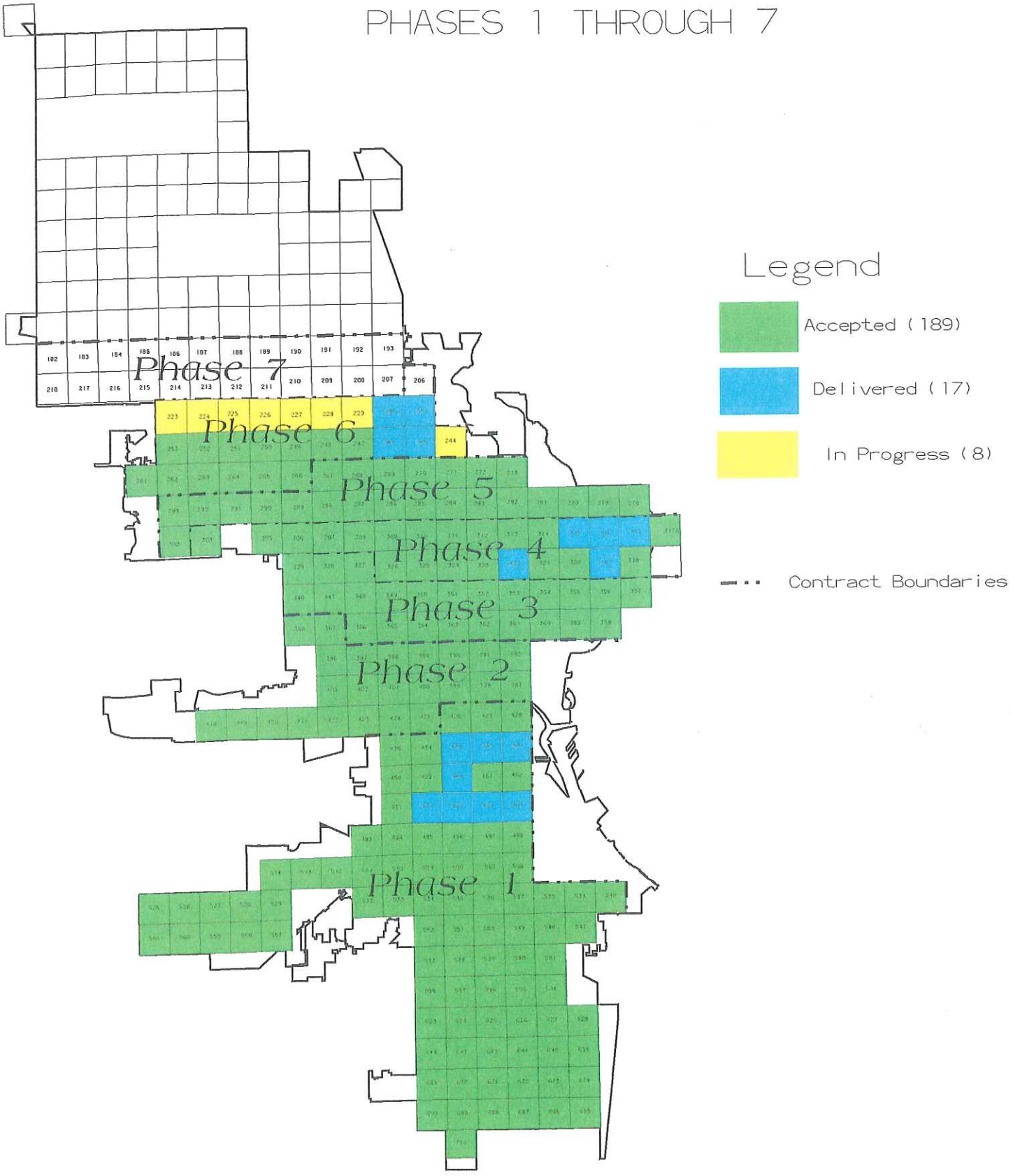
The City of Milwaukee cadastral map transformation project (Phase 7) consists of 24 U.S. Public Land Survey one-quarter-section-based maps again as delineated on an accompanying status map. As of January 8, 2003, No maps from this project area have been submitted to SEWRPC staff for review. The agreement governing this project calls for work to be completed by April 2004. There is currently no reason to expect that the project completion schedule will not be met.

* * *

NAO/TDP/ame
01-10-03
#43453 v1 - status-mcamlis projects at c/milw staff

MCAMLIS Transformation Project Progress Map

PHASES 1 THROUGH 7

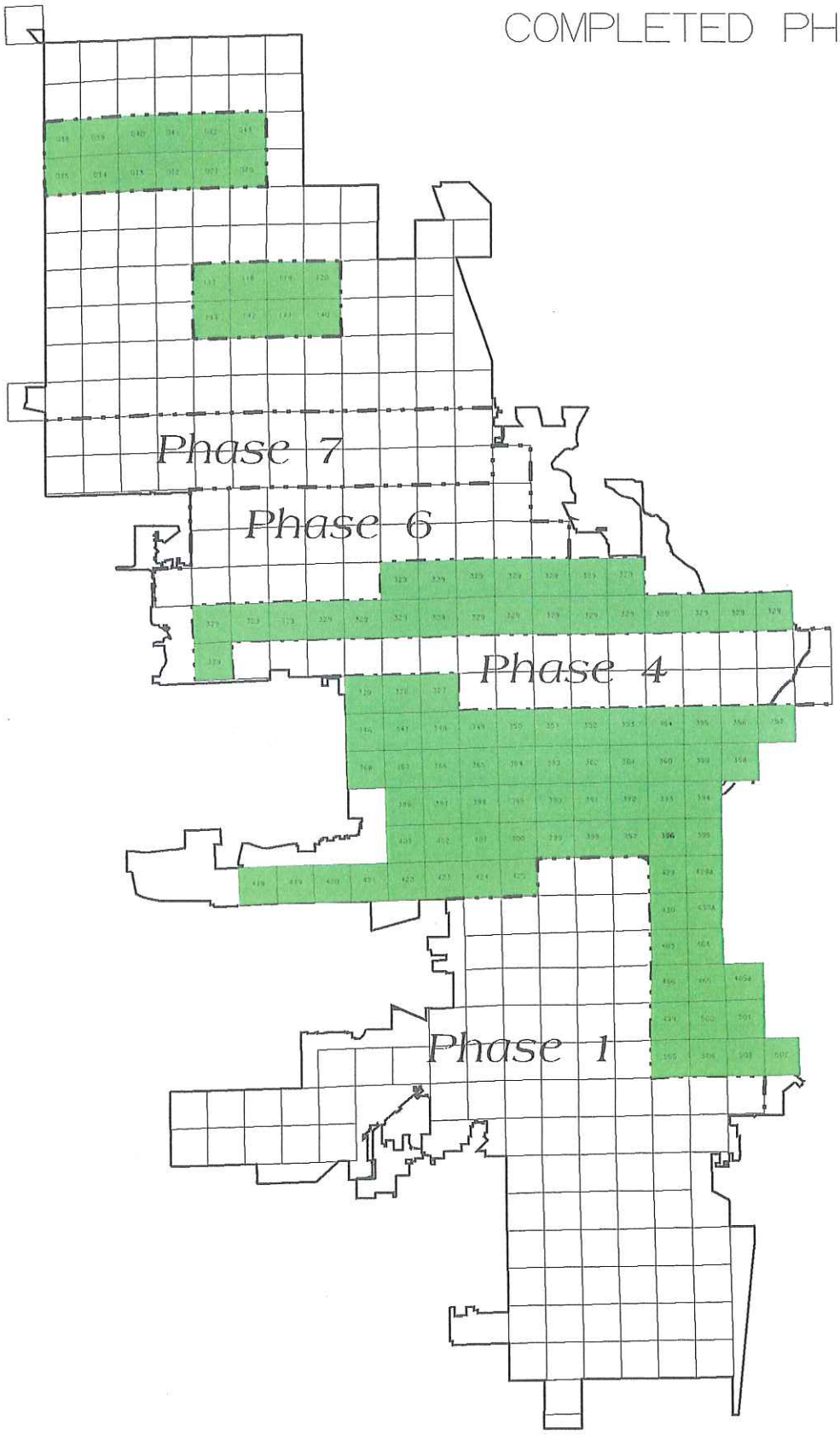


STATUS AS OF 01-08-03

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

MCAMLIS Transformation Project

COMPLETED PHASES



Legend

Accepted

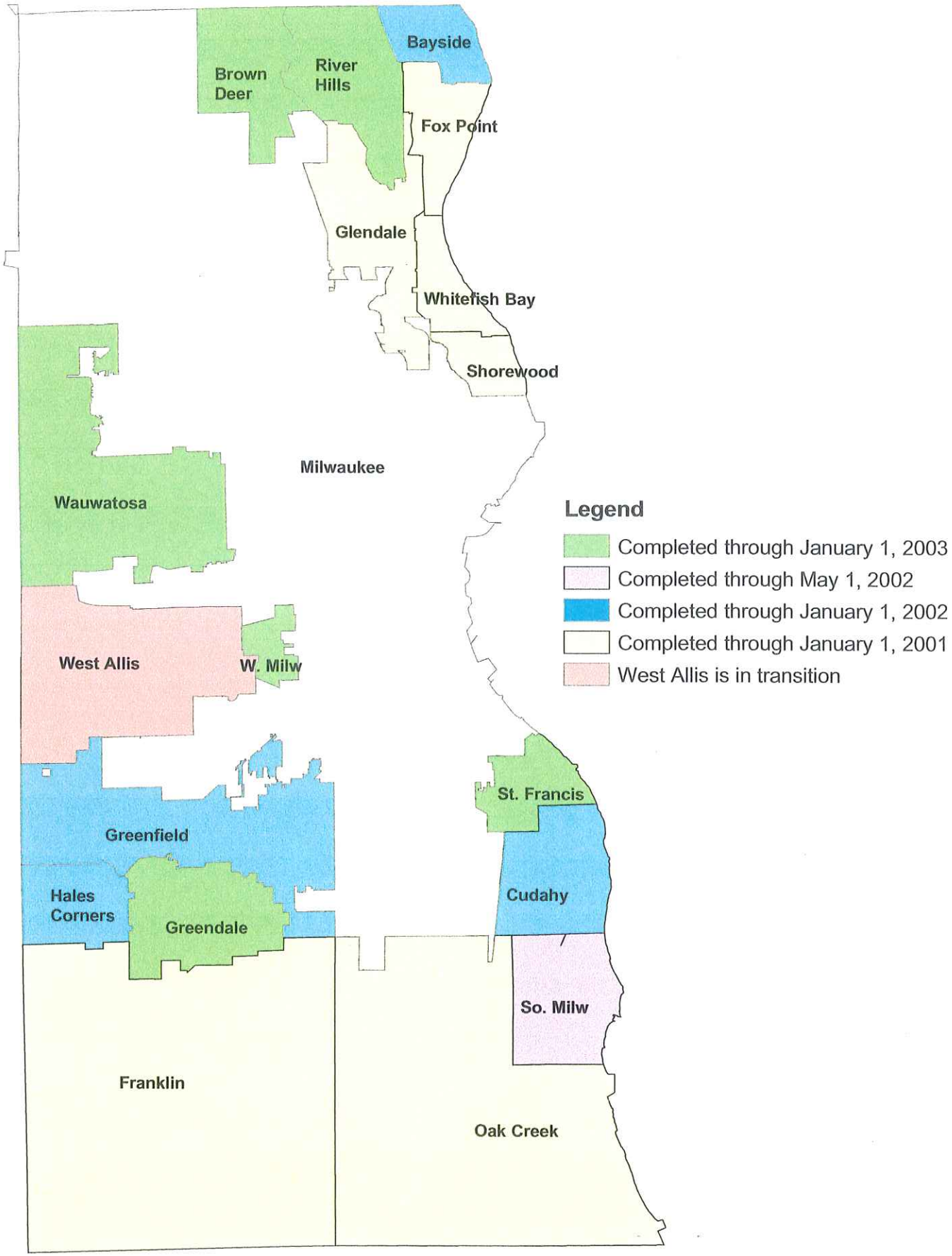
Phase Contract Boundary - In Progress

STATUS AS OF 01-08-03

PREPARED BY: CITY OF MILWAUKEE - ITMD/GIS

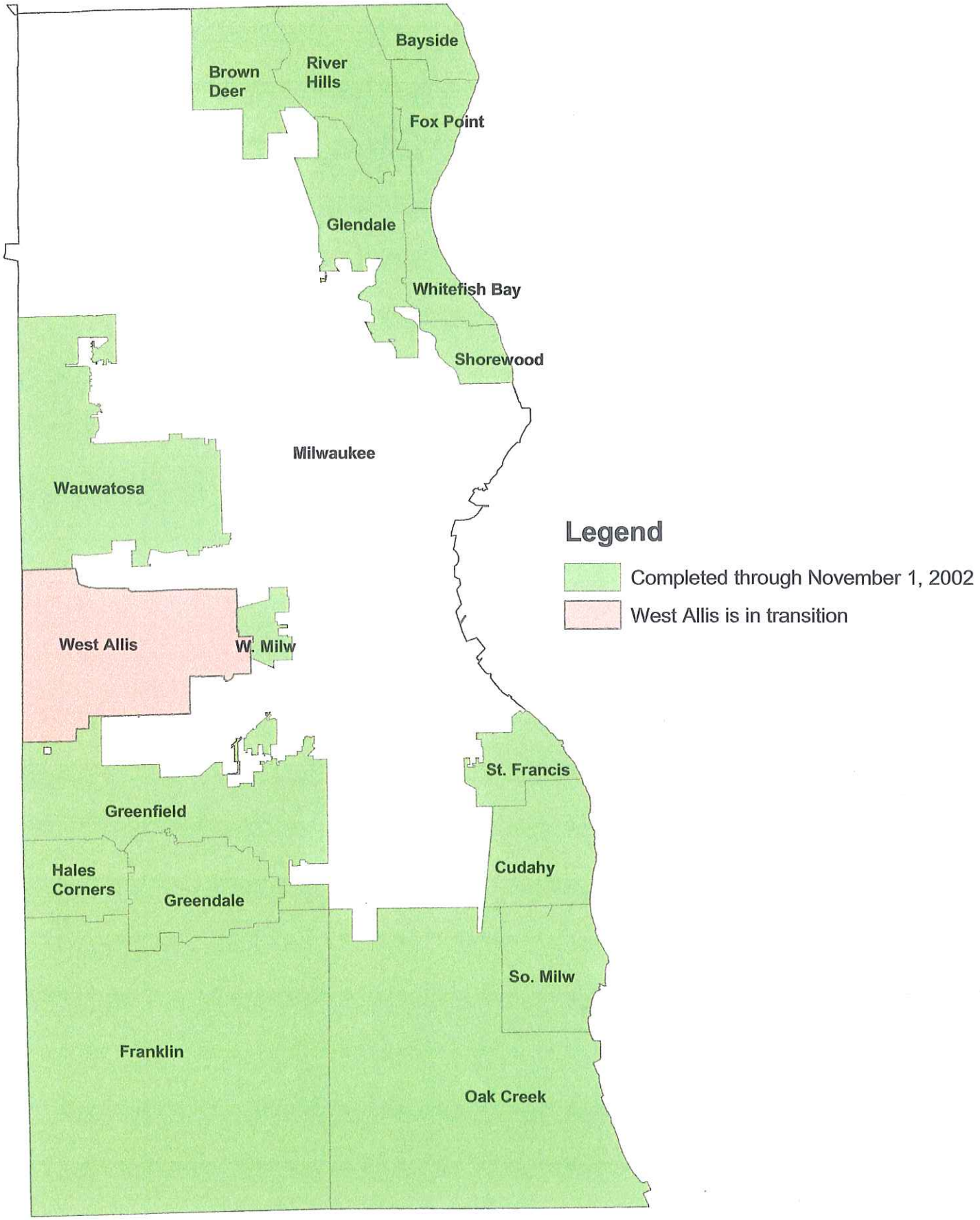
5D

Milwaukee County Address Status as of January 13, 2003



5D

Milwaukee County Cadastral Status as of January 13, 2003



5E

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: Milwaukee County Surveyor

DATE: January 14, 2003

SUBJECT: MILWAUKEE COUNTY SURVEYOR ACTIVITIES – 2002

This memorandum is intended to provide the MCAMLIS Steering Committee with a report on the work of the Milwaukee County Surveyor in calendar 2002. While the office and duties and functions of the County Surveyor are prescribed by Section 59.45 of the *Wisconsin Statutes*, in Milwaukee County the necessary work, pursuant to the direction of the County Board, is funded by document recording fees retained by the County pursuant to Section 59.43(2) of the *Wisconsin Statutes*. Since the MCAMLIS Steering Committee is charged by contract between Milwaukee County and the public and private utilities operating within the County with administering these retained recording fees, a report to the Committee on the activities of the County Surveyor is in order.

Within Milwaukee County, the U.S. Public Land Survey System has been combined with the State Plane Coordinate system and the National Geodetic Vertical Control System to provide the high order horizontal and vertical control survey network required for the preparation and maintenance of the MCAMLIS large-scale topographic and cadastral maps. Therefore, the work of the Milwaukee County Surveyor entails not only the maintenance of the U.S. Public Land Survey System as such, but also the maintenance of the MCAMLIS horizontal and vertical control survey network. As such, the work requires expertise in geodetic as well as plane surveying and in the legal aspects of property boundary determination.

Attached hereto as Exhibit A is a map of Milwaukee County on which are shown the location of all of the corners of the U.S. Public Land Survey System for which various types of perpetuation activities were undertaken during the year. These activities involved the replacement of section, quarter section, witness and meander corners which were reported as damaged, disturbed or destroyed by construction, or other activities or actions. The work involved the setting of new monuments, and, as necessary, the replacement of attendant witness marks and benchmarks. New records of U.S. Public Land Survey control station records—dossier sheets—were prepared for each corner concerned. A copy of a typical dossier sheet is also attached as Exhibit B. As indicated on Exhibit A, a total of 151 U.S. Public Land Survey corners were involved in the perpetuation activity. In some cases, the perpetuation activity resulted in the determination of revised State Plane coordinate values for the corners and revised elevations for both the corners and the attendant benchmarks. In such cases, new control survey summary diagrams were prepared. A typical diagram is attached as Exhibit C.

Pursuant to State Statutes, Registered Land Surveyors must provide to the County Surveyor for filing copies of all plats of surveys other than land subdivision plats and certified survey maps prepared for surveys conducted within the County. In calendar year 2002, the County Surveyor received, indexed, and filed 1,561 records of land surveys completed within the County, bringing the total number of records of land surveys completed within the County, which had been filed with the County Surveyor since the inception of this work in 1984, to 35,845. The filed records are indexed to permit retrieval by name of the surveyor concerned, the property owner concerned, the date of the survey plat, the civil division, and the U.S. Public Land Survey one-quarter section within which the plat is located.

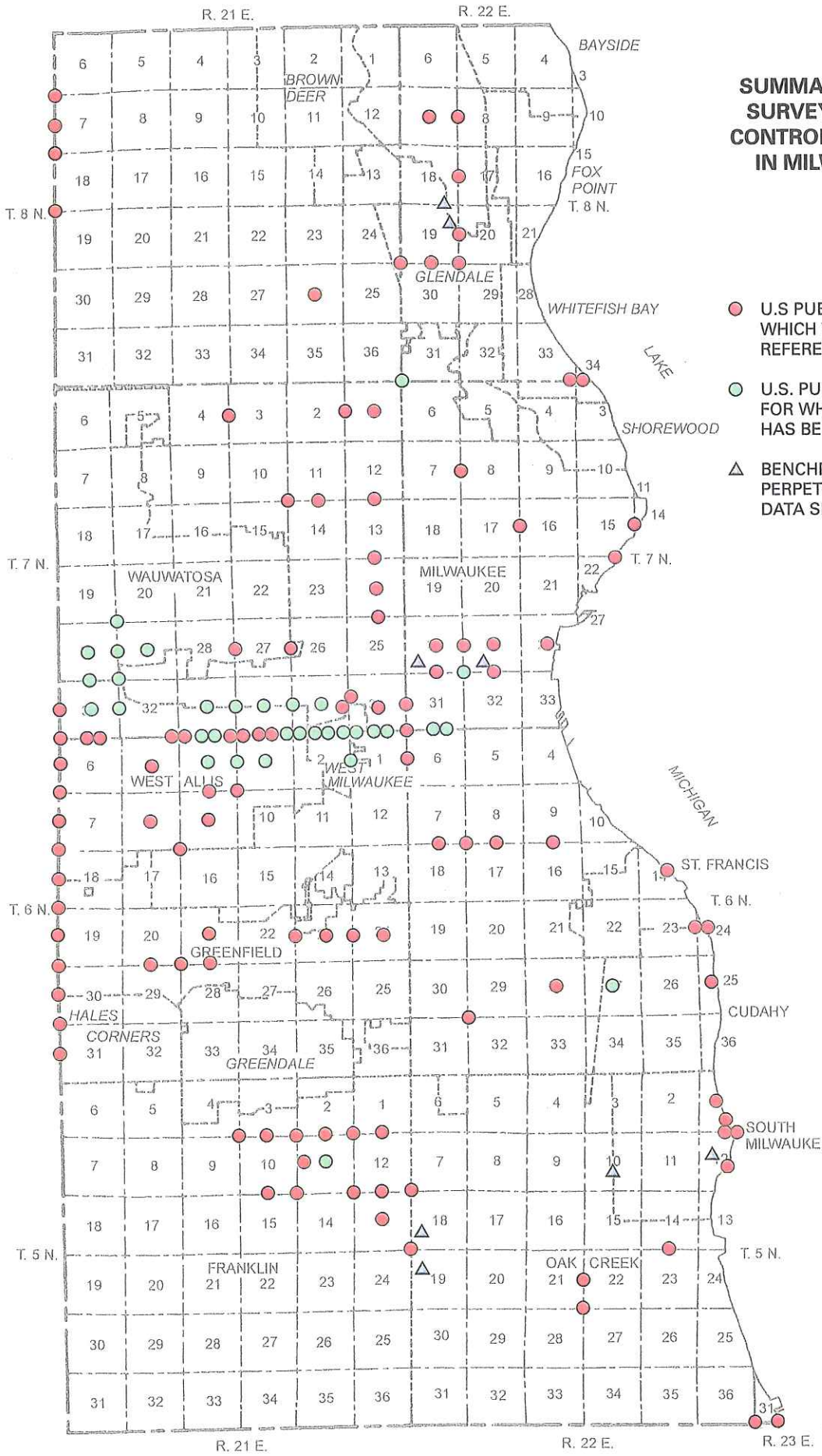
The County Surveyor also assists MCAMLIS in the preparation of contracts and specifications for large scale topographic and cadastral mapping and for special projects, such as the mapping of hazards to air navigation in the vicinity of General Mitchell International Airport.

KWB/wb
#79599 v1 - SURVEYOR REPORT TO MCAMLIS

Attachments

Exhibit A

SUMMARY OF U.S. PUBLIC LAND SURVEY SYSTEM CORNER AND CONTROL SURVEY PERPETUATION IN MILWAUKEE COUNTY: 2002



- U.S PUBLIC LAND SURVEY CORNERS WHICH WERE REMONUMENTED AND/OR REFERENCED IN 2002 (110)
- U.S. PUBLIC LAND SURVEY CORNERS FOR WHICH CONTROL SURVEY DATA HAS BEEN REVISED (33)
- △ BENCHMARKS WHICH HAVE BEEN PERPETUATED AND FOR WHICH NEW DATA SHEETS HAVE BEEN PREPARED (8)

GRAPHIC SCALE

0 3 MILES

Exhibit B

RECORD OF U. S. PUBLIC LAND SURVEY CONTROL STATION

U. S. PUBLIC LAND SURVEY CORNER 21|22 / 21|22 T 5 N, R 22 E, MILWAUKEE COUNTY, WISCONSIN

HORIZONTAL CONTROL SURVEY BY: AERO-METRIC, INC. YEAR: 1994
VERTICAL CONTROL SURVEY BY: AERO-METRIC, INC./SEWRPC YEAR: 1994/2002

STATE PLANE COORDINATES OF: QUARTER SECTION CORNER
NORTH 327,533.16
EAST 2,564,843.82
ELEVATION OF STATION: 670.502

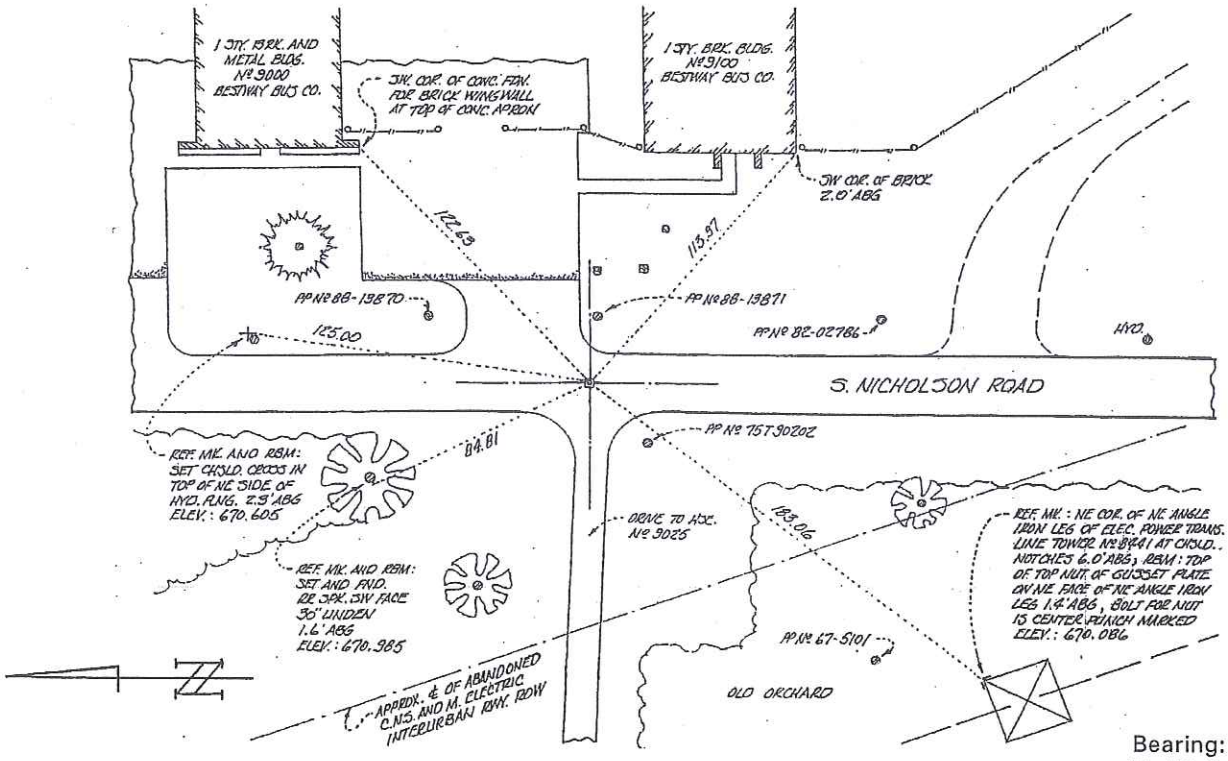
HORIZONTAL DATUM: WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE NORTH AMERICAN DATUM OF 1927

VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM OF 1929

THETA ANGLE: +1-26-53

CONTROL ACCURACY:
HORIZONTAL: THIRD ORDER, CLASS I VERTICAL: SECOND ORDER, CLASS II

LOCATION SKETCH:



Bearing: N 00-43-46 E
To NE Cor. Sec. 21, 5-

SURVEYOR'S AFFIDAVIT:

STATE OF WISCONSIN)
MILWAUKEE COUNTY) SS

As Milwaukee County Surveyor, I hereby certify that I set a concrete monument with SEWRPC brass cap to mark this corner following water main construction; replacing a concrete monument with City of Oak Creek brass cap found and referenced by me on June 23, 1993, said monument having been set to mark this corner in May 1961 by William T. Wambach, Jr., S-371; replacing an old, subsurface six-inch-square, cut limestone monument set to mark this corner in 1876 by George F. Epeneter, Milwaukee County Surveyor, in the conduct of the remonumentation of the U.S. Public Land Survey system in the Town of Oak Creek; replacing in turn a wood post set to mark this corner in March 1836 by Elisha Dwelle, Deputy United States Surveyor, in the conduct of the original United States Public Land Survey; that I referenced the same as shown hereon; and that this record is correct and complete to the best of my knowledge and belief.

WISCONSIN K. W. BAUER MILWAUKEE, WIS. LAND SURVEYOR

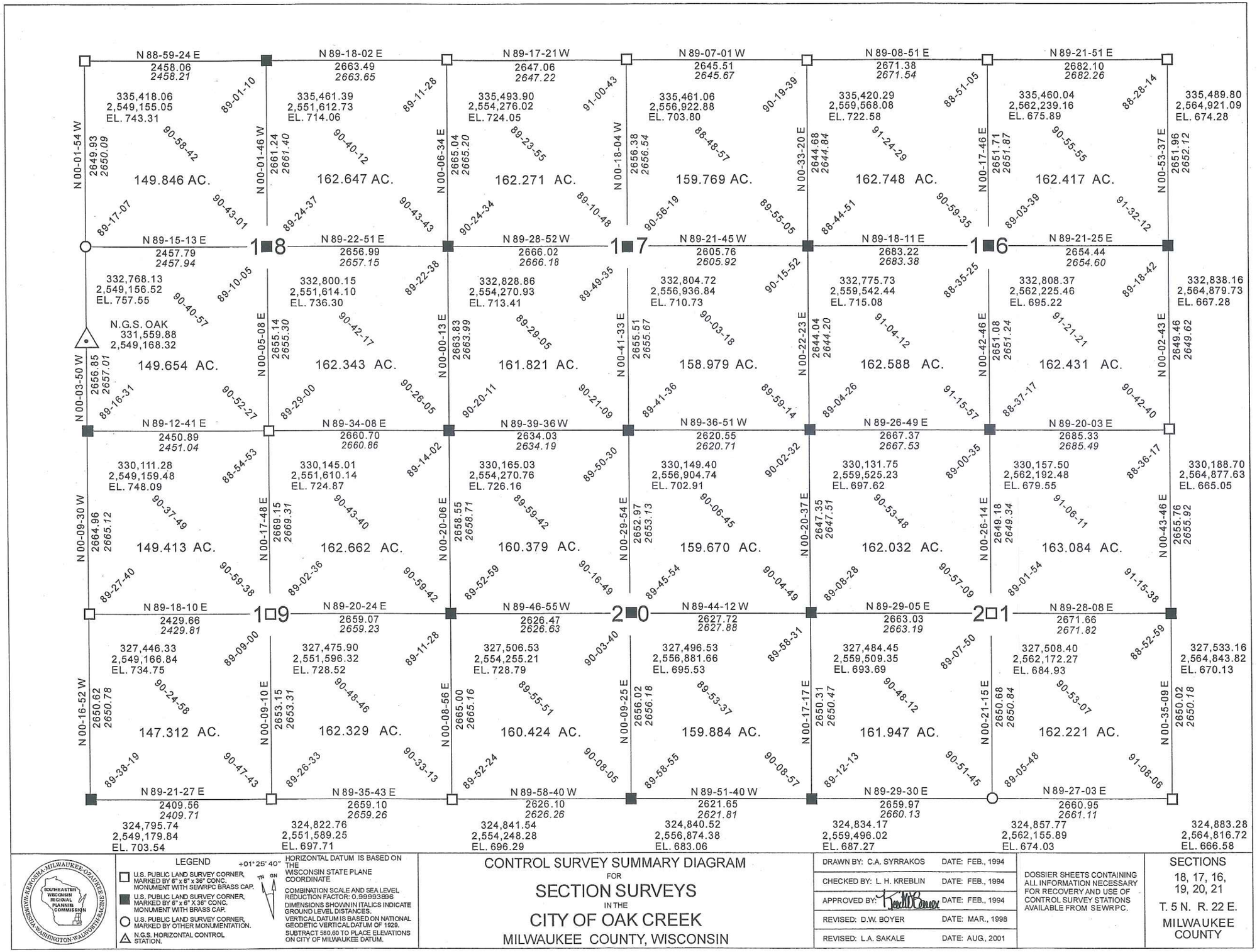
DATE OF SURVEY: 10 June 2002

Kurt W. Bauer
REGISTERED LAND SURVEYOR

S - 157

FORM PREPARED BY SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

Exhibit C



SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

MILWAUKEE-RACINE-WASHINGTON-WALWORTH-OZAUKEE-WAUKESHA-WISCONSIN

LEGEND

- □ U.S. PUBLIC LAND SURVEY CORNER, MARKED BY 6" x 6" x 36" CONC. MONUMENT WITH SEWRPC BRASS CAP.
- ■ U.S. PUBLIC LAND SURVEY CORNER, MARKED BY 6" x 6" X 36" CONC. MONUMENT WITH BRASS CAP.
- ○ U.S. PUBLIC LAND SURVEY CORNER, MARKED BY OTHER MONUMENTATION.
- △ N.G.S. HORIZONTAL CONTROL STATION.

+01° 25' 40" TM GN

HORIZONTAL DATUM IS BASED ON THE WISCONSIN STATE PLANE COORDINATE

COMBINATION SCALE AND SEA LEVEL REDUCTION FACTOR: 0.99993896

DIMENSIONS SHOWN IN ITALICS INDICATE GROUND LEVEL DISTANCES.

VERTICAL DATUM IS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. SUBTRACT 580.60 TO PLACE ELEVATIONS ON CITY OF MILWAUKEE DATUM.

CONTROL SURVEY SUMMARY DIAGRAM
FOR
SECTION SURVEYS
IN THE
CITY OF OAK CREEK
MILWAUKEE COUNTY, WISCONSIN

DRAWN BY: C.A. SYRRAKOS	DATE: FEB., 1994
CHECKED BY: L. H. KREBLIN	DATE: FEB., 1994
APPROVED BY: Kenneth Bauer	DATE: FEB., 1994
REVISED: D.W. BOYER	DATE: MAR., 1998
REVISED: L.A. SAKALE	DATE: AUG., 2001

DOSSIER SHEETS CONTAINING ALL INFORMATION NECESSARY FOR RECOVERY AND USE OF CONTROL SURVEY STATIONS AVAILABLE FROM SEWRPC.

SECTIONS
18, 17, 16,
19, 20, 21
T. 5 N. R. 22 E.
MILWAUKEE
COUNTY

5F

MEMORANDUM

TO: MCAMLIS Steering Committee

FROM: MCAMLIS Project Staff

DATE: January 16, 2003

SUBJECT: CHANGES MADE TO THE WLIP 2002 GRANT DISTRIBUTION

BACKGROUND

At the Steering Committee meeting held on October 8, 2002, project staff reported to the Steering Committee that as a result of the Wisconsin Land Information Program (WLIP) 2002 grant distributions, Milwaukee County would receive the amount of $99,248 in the contribution-based grant award category. Project staff were directed by Steering Committee action to apply for the grant in this amount that would be used in partial support of additional parcel map transformation work in the City of Milwaukee.

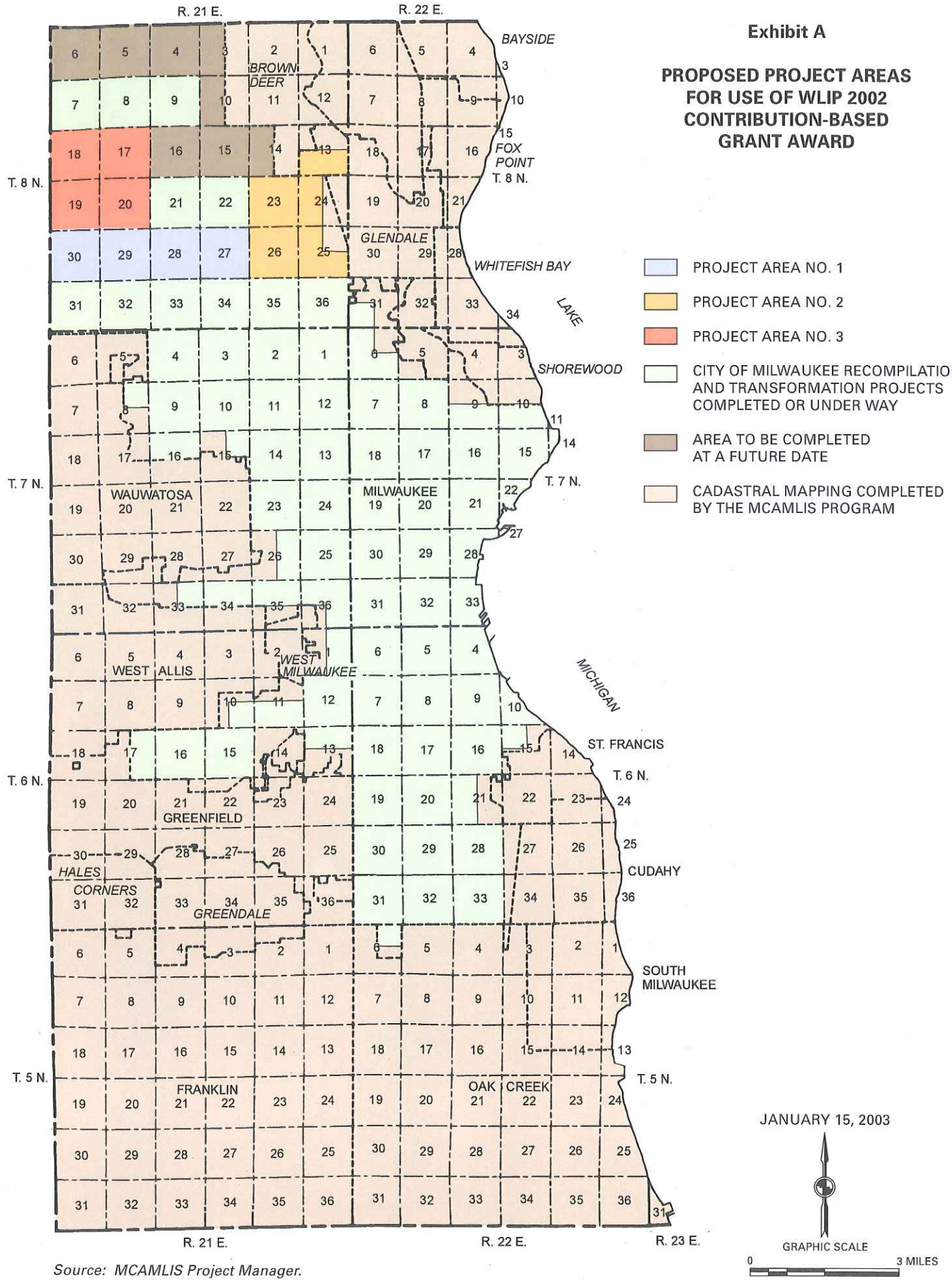
On January 3, 2003, project staff were notified that the guidelines for the WLIP 2002 grant distributions had been revised as a result of action taken by the Wisconsin Land Information Board (WLIB). Essentially, these changes were the result of the WLIB's desire to allocate funds collected during State fiscal year 2003 prior to the "sunset" of the WLIB and WLIP grants-in-aid program on September 1, 2003. As a result of the changes in the guidelines, the original grant allocation of $99,248 has been increased to $200,368, in the contribution-based award category.

RECOMMENDATION

Current WLIP guidelines do not allow for a single grant award to exceed $100,000. In order to take full advantage of the amount available, project staff is recommending that two additional grant applications be filed for this $200,368 contribution-based award. Staff is further proposing that these applications be used in continuing support of the cadastral map transformation projects in the City of Milwaukee.

It should be noted in this regard that this recommendation is consistent with the recommendations set forth in the strategic assessment memorandum also reviewed and approved by the Steering Committee at the October 8th meeting. In order to cause minimal disruption to the budget set forth in the strategic assessment memorandum, those areas referred to as the Phase 8 and Phase 9 project areas in the strategic assessment memorandum transformation program will be divided into three smaller areas, each of which will be about two-thirds the size of an individual phase area. In other words, the sum of the Phase 8 and Phase 9 project areas would be divided into three project areas for the purpose of submitting the grant applications. These project areas are delineated as Project Area 1, Project Area 2, and Project Area 3 on the map attached hereto as Exhibit A.

* * *



Source: MCAMLIS Project Manager.

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2003	**2003**	
90.	1.	North Shore Fire Equipment	01/13/03`

#58437 v1 - MCAMLIS-EXECUTED LIC. AGREEMNTS

EXECUTED LICENSE AGREEMENTS

Number of Executed Agreements		Licensee	Effective Date
Since 1995	For 2002	**2002**	
70.	1.	Urban Ecology Center, Inc.	01/28/02
71.	2.	PBS & J	02/19/02
72.	3.	Schlitz Audubon Nature Center	03/18/02
73.	4.	URS Corporation	05/10/02
74.	5.	Architects/Planners	05/22/02
75.	6.	STS Consultants, Ltd.	07/19/02
76.	7.	HNTB Corporation	07/26/02
77.	8.	Farr Associates, Inc.	08/06/02
78.	9.	Welch Hanson Associates	08/23/02
79.	10.	Walker Parking Consultants, Inc.	08/27/02
80.	11.	Central City Construction, Inc.	10/03/02
81.	12.	R. A. Smith & Associates	10/08/02
82.	13.	University of Wisconsin-Madison Department of Landscape Architecture	10/15/02
83.	14.	HDR, Inc.	10/17/02
84.	15.	Hey and Associates, Inc.	10/22/02
85.	16.	McClintock Architects, Inc.	12/11/02
86.	17.	Rowan Williams Davies & Irwin, Inc.	12/11/02
87.	18.	Harley-Davidson Motor Company Facilities Planning Department	12/12/02
88.	19.	Fantasia Design Services	12/12/02
89.	20.	Short Elliott Hendrikson, Inc.	12/18/02

5H

	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	2002 Per 13 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0		0
Current Period Reserve	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Recording Fees (**$4.00** Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	918,012	7,899,657
Recording Fees (**$1.00** Portion)												72,968	230,597	303,565
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	197,979	1,628,167
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0		1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0		520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	1,346,588	11,911,389
TOTAL FUNDS AVAILABLE	413,886	920,323	1,420,514	1,761,142	1,504,485	1,778,755	2,073,474	2,024,667	2,041,364	2,101,100	1,992,266	1,707,402	1,530,340	12,095,141
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	577,619	3,467,805
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0		950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0		128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0		41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0		144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	1,095,708	8,165,225
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0		119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0		1,953
Project Conversion Costs														0
SEWRPC Staff and Training														0
Computer Hardware/Software														0
ROD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0		7,088
Computer Maintenance														0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0		26
Rent and Utilities														0
Database Maintenance and Updates														0
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	295	1,252
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-2,085	-25,256
Miscellaneous									40	0	0	0		40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	1,093,918	8,584,822
TOTAL EXPS / ENCUMBRANCES	130,586	424,401	847,466	1,466,012	444,072	468,109	798,615	942,349	915,612	992,412	1,427,806	1,523,650	1,671,537	12,052,627
NET AVAIL FUNDS (END RESERVE)	283,300	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	-141,197	42,514

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2002, and $20,000 in 2003.

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	1990 Actual	1991 Actual	1992 Actual	1993 Actual	1994 Actual	1995 Actual	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	12/312002 Actual	TOTAL
Beginning Period Reserve-January 1	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Mid-Year Reserve Changes	0	0	0	0	0	0	0	0	0	0	0	0		0
Current Period Reserve	0	283,340	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	183,752
Recording Fees (**$4.00** Portion)	101,886	324,983	612,592	676,093	647,355	503,342	574,328	644,508	769,820	773,078	609,683	743,977	902,060	7,883,705
Recording Fees (**$1.00** Portion)												72,968	226,591	299,559
State Grants	0	0	0	150,000	200,000	165,000	138,500	55,300	139,226	152,270	103,895	325,997	197,979	1,628,167
1 Private Utility Contributions	312,000	312,000	312,000	312,000	312,000	0	0	0	0	0	0	0		1,560,000
2 MMSD Contribution	0	0	0	50,000	50,000	50,000	50,000	50,000	50,000	50,000	170,000	0		520,000
Annual Revenue	413,886	636,983	924,592	1,188,093	1,209,355	718,342	762,828	749,808	959,046	975,348	883,578	1,142,942	1,326,630	11,891,431
TOTAL FUNDS AVAILABLE	413,886	920,323	1,420,514	1,761,142	1,504,485	1,778,755	2,073,474	2,024,667	2,041,364	2,101,100	1,992,266	1,707,402	1,510,382	12,075,183
Additional Encumbrance	100,000	22,075	534,849	272,943	-900,864	112,067	308,902	367,776	361,580	386,754	586,545	737,559	507,569	3,397,755
Legal Fees	0	350	600	0	0	0	0	0	0	0	0	0		950
Systems Consulting (UGC)	0	128,638	0	0	0	0	0	0	0	0	0	0		128,638
USPLS Remonumentation	0	41,260	0	0	0	0	0	0	0	0	0	0		41,260
Horizontal/Vertical Control Surveys	0	144,443	0	0	0	0	0	0	0	0	0	0		144,443
Aerial Photos/Mapping	21,555	17,925	292,060	1,178,794	1,340,370	356,953	490,821	576,268	556,108	608,450	842,594	787,620	1,010,208	8,079,725
Project Facilitator	8,991	73,567	21,650	14,995	0	0	0	0	0	0	0	0		119,203
Conference	0	59	1,046	319	0	0	528	0	0	0	0	0		1,953
Project Conversion Costs														0
SEWRPC Staff and Training														0
Computer Hardware/Software														0
ROD Materials Copied	0	0	0	0	6,291	797	0	0	0	0	0	0		7,088
Computer Maintenance														0
Computer/Office Supplies	0	0	0	0	0	0	26	0	0	0	0	0		26
Rent and Utilities														0
Database Maintenance and Updates														0
Contractual Crosscharges	40	554	13	0	0	0	3	5	0	0	343	0	295	1,252
Charges Paid By Other Departments	0	-4,470	-2,752	-1,040	-1,724	-1,708	-1,664	-1,700	-2,116	-2,792	-1,676	-1,529	-1,925	-25,096
Miscellaneous									40	0	0	0		40
Annual Expenditures	30,586	402,326	312,616	1,193,069	1,344,936	356,042	489,713	574,573	554,032	605,658	841,261	786,091	1,008,578	8,499,482
TOTAL EXPS / ENCUMBRANCES	130,586	424,401	847,466	1,466,012	444,072	468,109	798,615	942,349	915,612	992,412	1,427,806	1,523,650	1,516,147	11,897,237
NET AVAIL FUNDS (END RESERVE)	283,300	495,922	573,049	295,130	1,060,413	1,310,646	1,274,859	1,082,318	1,125,752	1,108,688	564,460	183,752	-5,765	177,946

1. 1994 was the final year for this revenue source.
2. $50,000 will be paid each year through 2002, and $20,000 in 2003.

VIII

Date: January 20, 2003

To: Dr. Kurt Bauer, Chairman
MCAMLIS Steering Committee

From: Reinhard Meihsner

Re: Agenda, MCAMLIS Meeting, January 28, 2003

As per our discussion several days ago, I would suggest that the work effort to integrate the City of Milwaukee addresses with the current MCAMLIS database be included as an agenda item for the meeting on January 28, 2003.

Thank you.

Reinhard Meihsner